DOES NOT CIRCULATE

MILITARY MEDICINE

THE UNIVERSITY OF MICHIGAN
DEC 22 1959
MEDICAL LIBRARY

SEASON'S GREETINGS

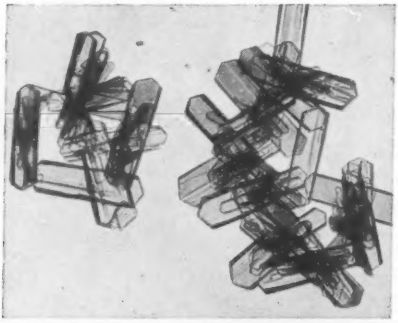
OFFICIAL JOURNAL
ASSOCIATION OF MILITARY SURGEONS
OF THE UNITED STATES
WASHINGTON, D. C.

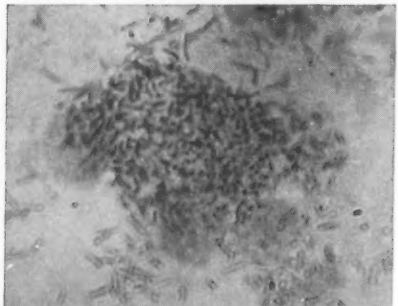
VOL. 124 DECEMBER 1959 NO. 12
INDEX NUMBER

AN IMPORTANT CONTRIBUTION TO THE TREATMENT OF LEPROSY...

CIBA-1906

CIBA-1906, A THIOUREA DERIVATIVE, HAS SHOWN THE FOLLOWING ADVANTAGES DURING 4 YEARS OF CLINICAL TRIAL IN OVER 20 COUNTRIES:





- reliable antibacterial action in both lepromatous and tuberculoid leprosy, even in patients unresponsive or resistant to other antileprosy drugs.
- minimum of toxic side effects; well tolerated even by children and patients hypersensitive to sulphones.
- produces prompt reduction in bacterial count, with correspondingly rapid clinical improvement.
- "lepra reactions" occur rarely and in mild form.
- less scar formation and nerve destruction.
- does not cause depression; may produce a sense of well-being.
- no known contraindications.
- can be combined with other antileprosy agents.

Available only for investigational use; for further information write to:
CIBA LIMITED, BASLE, SWITZERLAND

E/2748 MB

PUSH-BUTTON PATHOGENICIDE

KILLS ON CONTACT

LASTS FOR HOURS

BETADINE™ AEROSOL SPRAY

(active ingredient: Povidone Iodine)

In prepping procedures, quick, easy-to-use BETADINE AEROSOL SPRAY assures unexcelled topical pathogenicidal activity with maximum surgical acceptance and patient comfort. It eliminates microbial colony transfers, minimizes insult to denuded areas, maintains sterile field throughout operation, covers body crevices, saves time.

established in 1905
TAILBY-NASON CO., INC., DOVER, DEL.

BETADINE AEROSOL SPRAY kills bacteria, fungi, yeasts, protozoa, and viruses on contact; *it is effective against resistant organisms including Staph. aureus,* and will not lead to the development of resistant strains on prolonged use.

BETADINE AEROSOL SPRAY, a povidone iodine complex spray, provides all the germicidal properties of elemental iodine, yet is nonirritating, nonsensitizing, and nontoxic to skin or mucosa.[1-5]

BETADINE AEROSOL SPRAY supplied: 3-oz. bottle. same pathogenicidal properties also available in BETADINE ANTISEPTIC SOLUTION in 8-oz., 16-oz., and gallon bottles for office and hospital use.

1. SHELANSKI, H.A., AND SHELANSKI, M.V.: POLYVINYL-PYRROLIDONE-IODINE STUDIES THROUGH 1951, PERSONAL COMMUNICATIONS, GAF, INC. 2. SHELANSKI, H.A., AND SHELANSKI, M.V.: J. INTERNAT. COLL. SURGEONS 25:727, 1956. 3. GERSHENFELD, L.: AM. J. SURG. 94:938, 1957. 4. BOGASH, R.C.: BULL. AM. SOC. HOSPITAL PHARMACISTS VOL. 13, (MAY-JUNE) 1956. 5. GARNES, A.L.; DAVIDSON, E.; TAYLOR, L.E.; FELIX, A.J.; SHIDLOVSKY, B.A., AND PRIGOT, A.: AM. J. SURG. 97:49, 1959.

VOL. 124 December, 1959 NO. 12

MILITARY MEDICINE

(*Formerly* THE MILITARY SURGEON)

Official Publication of the Association of Military Surgeons of the United States,

Suite 718, 1726 Eye Street, N.W.,
Washington 6, D.C. Telephone *NAtional* 8-2206

Editor:
ROBERT E. BITNER
Colonel, USA, Ret.

Executive Secretary:
GEORGE M. BEAM
Lt. Col., AUS, Ret.

Advertising Representative:
STEVEN K. HERLITZ, INC.
280 Madison Ave.
New York 16, N.Y.

Published Monthly

Copyright ©, Association of Military Surgeons of U.S., 1959

Contents

Original Articles: *Page*

Observations on Mice Exposed to Cosmic Radiation in the Stratosphere—A Longevity and Pathological Study of 85 Mice 835
Irwin J. Lebish, Capt., VC, U. S. Army; David G. Simons, Lt. Col., MC, U. S. Air Force; Herman Yagoda, Ph.D.; Peter Janssen, M.D.; Webb Haymaker, M.D.

Impact of an Influenza Epidemic on a Civilian Community: Effects Upon Selected Industries and Hospitals 848
I. M. Rosenstock, David Burgoon, John D. Colby, and Victoria M. Trasko

The Alcoholic Patient—His Needs as Met by Alcoholics Anonymous and the Case-worker 851
Peter T. Van Suetendael, 1st Lt., MSC, U. S. Army

The Professional Medical Training Program, U. S. Army 856
Dan Crozier, Col., MC, U. S. Army; E. M. Throne, Major, MC, U. S. Army

Editorials 867

328th General Hospital (Reserve), Fort Douglas, Utah 870

Sustaining Members 871

Around the World—Claudius F. Mayer, M.D. 872

The Wellcome Prize Competition Announcement for 1960 877

Notes 878

New Books 888

Book Reviews 889

Index to Volume 124 893

Index to Advertisers 6b

• Second-class postage paid at the post office at MENASHA, WISCONSIN, and at additional mailing office. • Publication office: Curtis Reed Plaza, Menasha, Wisconsin. • Subscription $7.50 a year for the United States. Elsewhere throughout the world, $8.50. Current copy, 75 cents. Subscriptions payable in advance. Membership dues (including subscription to MILITARY MEDICINE) $6.00. Checks should be made payable to The Association of Military Surgeons, U. S., and not to any officer personally. • *The addresses of members and subscribers are not changed except upon request.* In every case the old as well as the new address should be given. Requests for change of address must reach the Editor before the fifteenth of the month to be effective for the following issue. Printed in U.S.A.

NOW even many cardiac patients may have THE FULL BENEFITS OF CORTICOSTEROID THERAPY

DECADRON—the new and most potent of all corticosteroids, **eliminated fluid retention in all but 0.3 percent of 1500 patients†, and induced beneficial diuresis in nearly all cases of pre-existing edema.**

DEXAMETHASONE

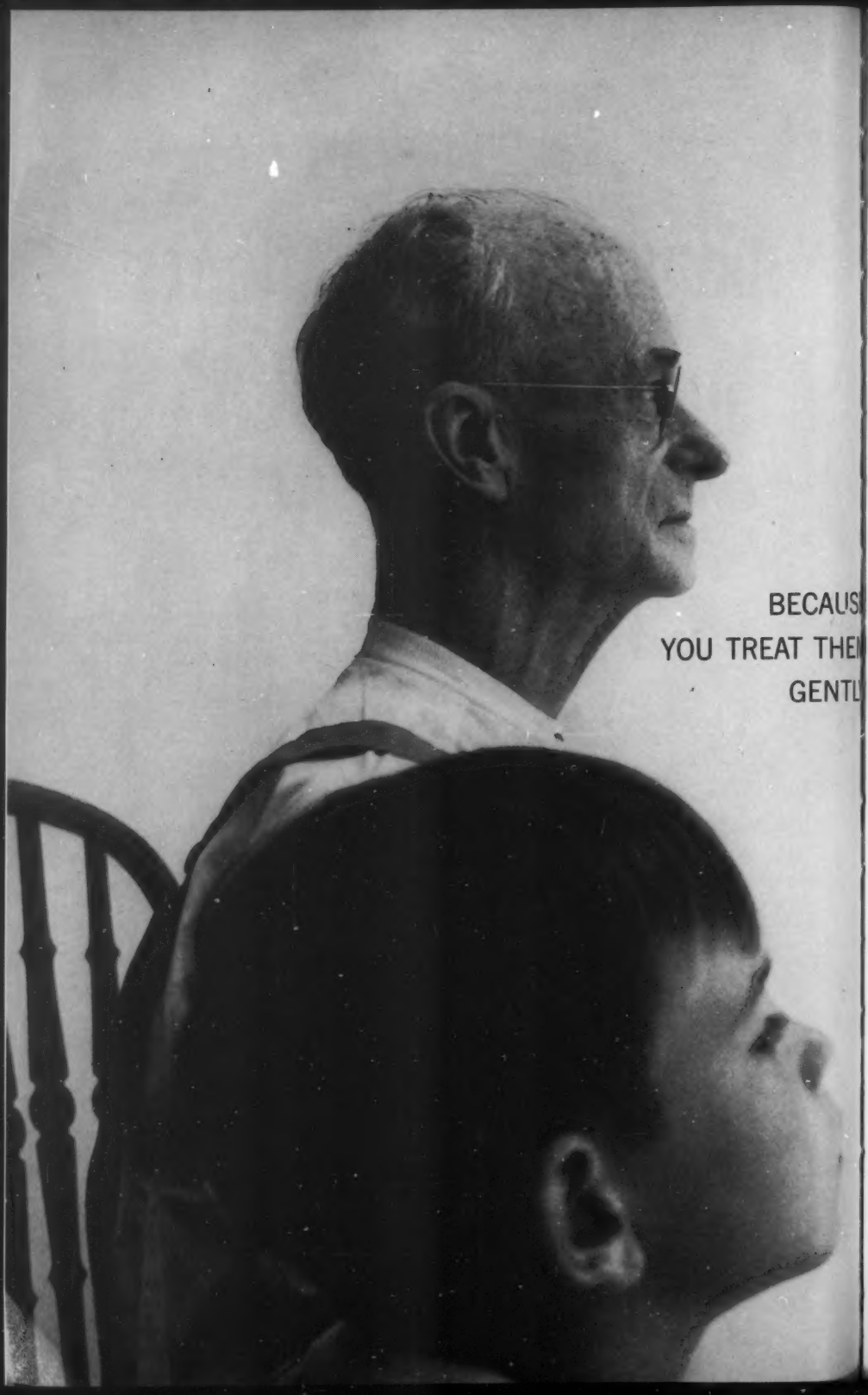
treats more patients more effectively

Therapy with DECADRON has also been distinguished by virtual absence of diabetogenic effects and hypertension, by fewer and milder Cushingoid reactions, and by freedom from any new or "peculiar" side effects. Moreover, DECADRON has helped restore a "natural" sense of well-being.

†Analysis of clinical reports.

*DECADRON is a trademark of Merck & Co., Inc., ©1958 Merck & Co., Inc.

MSD **MERCK SHARP & DOHME**
Division of Merck & Co., Inc., Philadelphia 1, Pa.


BECAUS
YOU TREAT THE
GENTL

"In no case . . .
was there any rebound congestion."[1]

Your youngest patient as well as your oldest will find new Otrivin an unusually gentle yet remarkably effective nasal decongestant. Otrivin works quickly; its action is prolonged. Typical of many clinicians' reports is the one published by Kolodny[1]: Of 64 patients studied, 92 per cent had good or excellent results. "In no case studied was there any rebound congestion. Local side effects were minimal. . . . Extremely few systemic effects occurred. . . ."

NEW

OTRIVIN® FOR GENTLE RELIEF OF STUFFY NOSE

ON PRESCRIPTION ONLY

Otrivin is safe even for the very young. "The particularly striking feature of Otrivin solution was the absence of side effects, even in infants as young as two weeks."[2] "It is effective in low concentrations and is a safe nasal vasoconstrictor for even the young patient."[3]

SUPPLIED: Otrivin *Nasal Solution*, 0.1%; dropper bottles of 1 ounce. Otrivin *Nasal Spray*, 0.1%; plastic squeeze tubes of 15 ml. Otrivin *Pediatric Nasal Spray*, 0.05%; plastic squeeze tubes of 15 ml.

REFERENCES: 1. Kolodny, A. L.: Antibiotic Med. *6*:452 (Aug.) 1959. 2. Davis, M. R.: To be published. 3. Peluse, S.: In press.

Otrivin® hydrochloride (xylometazoline hydrochloride CIBA)

C I B A SUMMIT, N. J.

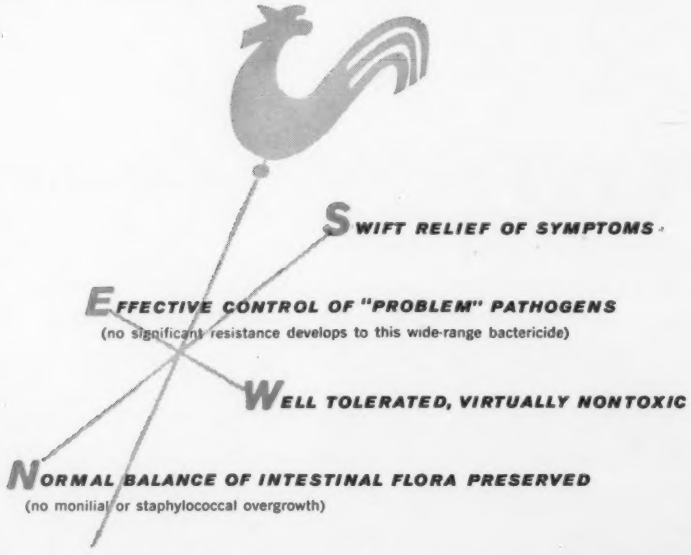
TO STOP DIARRHEA

from all points... growing evidence favors

FUROXONE®

brand of furazolidone

▪ Pleasant-flavored LIQUID, 50 mg. per 15 cc. (with kaolin and pectin) ▪ Convenient TABLETS, 100 mg. ▪ Dosage—400 mg. daily for adults, 5 mg./Kg. daily for children (in 4 divided doses).


SWIFT RELIEF OF SYMPTOMS
EFFECTIVE CONTROL OF "PROBLEM" PATHOGENS
(no significant resistance develops to this wide-range bactericide)
WELL TOLERATED, VIRTUALLY NONTOXIC
NORMAL BALANCE OF INTESTINAL FLORA PRESERVED
(no monilial or staphylococcal overgrowth)

From a Large Midwestern University: FUROXONE Controls Antibiotic-Resistant Outbreak. An outbreak of bacillary dysentery due to Shigella sonnei was successfully controlled with FUROXONE after a broad-spectrum antibiotic had proved inadequate. Cure rates (verified by stool culture) were 87% with FUROXONE, 36% with chloramphenicol. Only FUROXONE "failures" were those lost to follow-up. Chloramphenicol failures subsequently treated with FUROXONE responded without exception. FUROXONE was also used effectively as prophylaxis and to eliminate the carrier state. It was "extremely well tolerated in all 191 individuals who received it either prophylactically or therapeutically."

Galeota, W. R., and Moranville., B. A.: Student Medicine (in press)

THE NITROFURANS—A UNIQUE CLASS OF ANTIMICROBIALS EATON LABORATORIES, NORWICH, NEW YORK

Available on federal supply schedule, contract GS-00S-21424

dynamic control of

IN DIAGNOSIS – By reducing corneal edema, DIAMOX facilitates examination and diagnosis in ophthalmologic disorders.

AS THERAPY – By lowering intraocular pressure, conservative therapy with DIAMOX can often reduce the need of surgical intervention in various glaucomatous conditions. Traumatic hyphemas, for example, can be resolved without cyclodiathermy puncture.[1]

PRE- AND POSTOPERATIVE CARE – Where surgery is required, tension is first reduced by DIAMOX and maintained after surgery to speed healing. Used with miotics, the synergistic action improves efficacy.[1]

Suggested DIAMOX dosage for glaucoma: 250 mg. every four hours. In severe glaucomatous crises, the intravenous form may provide quicker reduction of global pressure.

Supplied: Scored tablets of 250 mg., and Vials of 500 mg. for parenteral use.

1. Venable, H. P.: J. Nat. M. A., 50:79, 1958.

GLAUCOMA

DIAMOX®

HCO_3 regulating diuretic

Acetazolamide Lederle

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

he'll be under way again soon, once he's on

PARAFON®

(PARAFLEX® + TYLENOL®)

for muscle relaxation plus analgesia

prescribe PARAFON in low back pain—sprains—strains—rheumatic pains

Each PARAFON tablet contains:

PARAFLEX® Chlorzoxazone†..... 125 mg.

Specific for skeletal muscle spasm

TYLENOL® Acetaminophen ..... 300 mg.

The analgesic preferred in musculoskeletal pain

Dosage: Two tablets t.i.d. or q.i.d.

Supplied: Tablets, scored, pink, bottles of 50.

and in arthritis

PARAFON® with Prednisolone

Each PARAFON WITH PREDNISOLONE tablet contains: PARAFLEX® Chlorzoxazone† 125 mg., TYLENOL® Acetaminophen 300 mg., and prednisolone 1.5 mg.

Dosage: One or two tablets t.i.d. or q.i.d.

Supplied: Tablets, scored, buff colored, bottles of 36.

Precautions: The precautions and contraindications that apply to all steroids should be kept in mind when prescribing PARAFON WITH PREDNISOLONE.

*sailor †U. S. Patent Pending

254C53

McNEIL

McNeil Laboratories, Inc · Philadelphia 32, Pa.

Available from GSA Contract #GS-00S-21343

XYLOCAINE

LOCAL & TOPICAL ANESTHETIC

NERVE BLOCK
INFILTRATION
SWAB SPRAY

Take off seal, safe,
procedures to remove

suturing: Xylocaine® HCl Solution applied topically will permit cleaning and suturing of wounds with patient comfort in an emergency or in the office. Fast acting – Safe – Dependable.

bursitis: Xylocaine HCl Solution injected into the painful area will diffuse around the bursae relieving pain promptly – often restoring normal freedom of motion. Prolonged anesthesia often prevents recurring pain.

therapeutic block: Xylocaine HCl Solution interrupts the underlying mechanism of pain, with relief often persisting even after the block has disappeared. It is of value in assisting motion or manipulation; for severe, intractable pain conditions; and in allowing patient comfort for other procedures.

minor surgery: Xylocaine HCl Solution will diffuse over a wide operative field, permitting pain-free removal of warts, cysts, moles, etc., and giving safe, effective, and predictable anesthesia for patient comfort.

Supplied: Multiple dose vials, 20 cc. and 50 cc.; 0.5%, 1% and 2% without and with epinephrine 1:100,000. Ampules, 2 cc.; 2% without and with epinephrine 1:100,000.

ASTRA

*U.S. PAT. NO. 2,441,498 MADE IN U.S.A.

Proven

in over three years of clinical use
in over 600 clinical studies

Specific

FOR RELIEF OF ANXIETY
AND MUSCLE TENSION

Selective

Does not interfere with autonomic function
Does not impair mental efficiency,
motor control, or normal behavior

MEPROBAMATE (WALLACE)

Miltown®

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets.

DM-5044

WALLACE LABORATORIES, New Brunswick, N. J.

★ **MILTOWN 400 mg. is the only meprobamate tablet stocked in VA depots —order item No. 1291851. Also see VA Decentralized Schedule V7023-P5794, items 129197F and 1291848 or GSA Contract GS-00S-21388.**

while they are planning
their family

they need your help
more than ever

the most widely prescribed contraceptive

WHENEVER A DIAPHRAGM IS INDICATED

Available at all Post Exchanges

For the first time

CONVENIENCE and ECONOMY

for that all-important first dose of broad-spectrum antibiotic therapy

New

TERRAMYCIN®

brand of oxytetracycline

INTRAMUSCULAR SOLUTION

Initiation of therapy in **minutes after diagnosis** with new, ready-to-inject Terramycin Intramuscular Solution provides maximum, sustained absorption of potent broad-spectrum activity.

...and for continued, compatible, coordinated therapy

COSA-TERRAMYCIN®

oxytetracycline with glucosamine

CAPSULES

Continuation with oral Cosa-Terramycin every six hours will provide highly effective antibacterial serum and tissue levels for prompt infection control.

The unsurpassed record of clinical effectiveness and safety established for Terramycin is your guide to successful antibiotic therapy.

Supply:
Terramycin Intramuscular Solution*
100 mg./2 cc. ampules 250 mg./2 cc. ampules

Cosa-Terramycin Capsules
125 mg. and 250 mg.

Cosa-Terramycin is also available as:
Cosa-Terramycin Oral Suspension — peach flavored, 125 mg./5 cc., 2 oz. bottle

Cosa-Terramycin Pediatric Drops — peach flavored, 5 mg./drop (100 mg./cc.), 10 cc. bottle with plastic calibrated dropper

Complete information on Terramycin Intramuscular Solution and Cosa-Terramycin oral forms is available through your Pfizer Representative or the Medical Department, Pfizer Laboratories.

*Contains 2% Xylocaine® (lidocaine), trademark of Astra Pharmaceutical Products, Inc.

Pfizer *Science for the world's well-being™*

PFIZER LABORATORIES, Division, Chas. Pfizer & Co.
Brooklyn 6, N. Y.

PSORIASIS

distressing
to the patient

perplexing
to the doctor

RIASOL®

clinically tested ▸
ethically promoted ▸
safe and effective ▸
easy to use ▸
maximum assurance ▸
against recurrence and adverse reactions

WRITE for PROFESSIONAL SAMPLE and LITERATURE

AVAILABLE
at pharmacies or direct
in 4 and 8 fluid ounces

COMPOSITION
RIASOL contains 0.45% Mercury chemically combined with soaps, 0.5% Phenol, 0.75% Cresol.

SHIELD LABORATORIES
Dept. M-1259
12850 Mansfield Avenue • Detroit 27, Michigan

in sprains
strains
fractures
contusions
hematomas
lacerations

VARIDASE reduces inflammation, swelling and pain by stimulating natural fibrinolysis sooner. Fluid interchange across the fibrin barrier is promoted...edema drains, pressure abates, normal regenerative factors and drugs gain access to the site...and the entire reaction-recovery cycle is shortened.

Dosage: One Buccal tablet four times daily, usually for five days. **Supplied:** Each tablet contains 10,000 Units Streptokinase, 2,500 Units Streptodornase. Boxes of 24 and 100 tablets.

Varidase®

Streptokinase-Streptodornase Lederle

Buccal
Tablets

conditions for a fast comeback

LEDERLE LABORATORIES, a Division of **AMERICAN CYANAMID COMPANY,** Pearl River, New York

Before Esidrix:
Weight 176 lbs.

27 pounds lost in 19 days; ascites and

RECORD OF TREATMENT (At a leading New York City hospital. Photos used with permission of the patient.)

Date	3/3	3/4	3/5	3/6	3/7	3/8	3/9	3/10	3/11	3/12	3/13	3/14	3/15	3/16	3/17	3/18	3/19	3/20	3/21	3/22	3/23
Weight (pounds)	178	176	170	169	167	159	158	158	157	153	155	155	156	154	153	154	153	—	—	151	149
Rx	M*		Esidrix 50 mg. b.i.d.																		

*Mercurial diuretic

Esidrix T.M.

(hydrochlorothiazide CIBA)

pre-eminently effective whenever diuresis is desired

Indicated in: congestive heart failure . . . nephrosis and nephritis . . . toxemia of pregnancy . . . premenstrual edema . . . edema of pregnancy . . . steroid-induced edema . . . edema of obesity

Supplied: Esidrix *Tablets,* 25 mg. (pink, scored) and 50 mg. (yellow, scored); bottles of 100 and 1000.

CIBA
SUMMIT, N. J.

pedal edema reduced with Esidrix

Available on Federal Supply Schedule GS-00S-21316

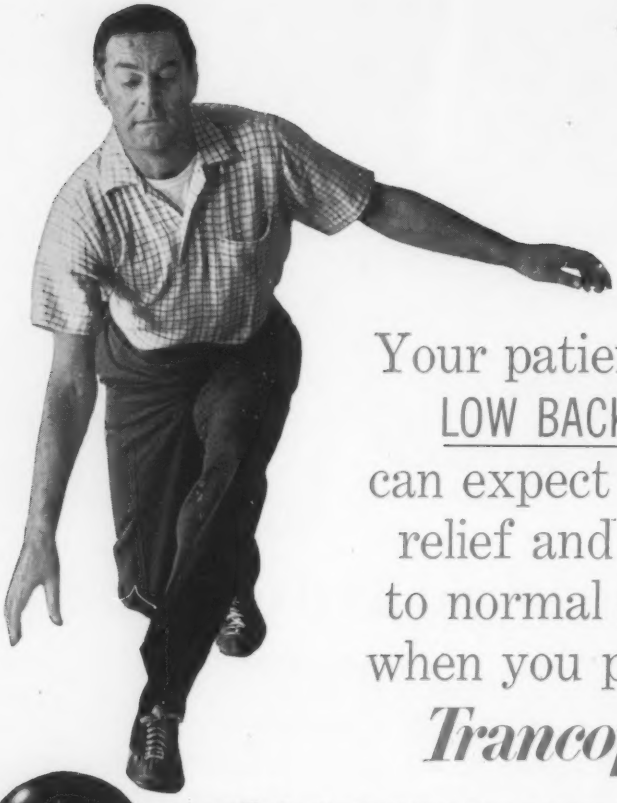
H. K., 44 years old, was admitted to the hospital on 3/3/59 with complaints of *swollen abdomen, swelling of both legs and exertional dyspnea.* These symptoms had been intensifying over a three-week period. The patient's history included heavy drinking since the age of 18, and one prior admission to the hospital in 1954 with ascites and pedal edema. Diagnosis, at that time, was Laennec's cirrhosis, and the patient responded well to a regimen of diuretics, salt restriction and multivitamins. There was no recurrence up to that leading to his current admission.

Clinical findings worthy of note: Eyes — conjunctivae and sclerae slightly icteric. Chest—diaphragm elevated. Abdomen — girth enlarged, definite fluid wave. Liver palpated 4 fingerbreadths below the costal margin; no other palpable viscera. Extremities—pedal edema (4+).

The patient is well developed and not in acute distress. Blood pressure, 140/80 mm. Hg; pulse, 112/min.; respiration, 20/min. Impression: Laennec's cirrhosis—decompensated.

Treatment: Mercurial diuretic on 3/3 and 3/4, followed by Esidrix, 50 mg. b.i.d., from 3/5 to 3/23 when patient signed out of hospital. Esidrix induced copious diuresis resulting in almost complete disappearance of edema.

2/2714MK



Your patients with LOW BACK PAIN can expect striking relief and return to normal activity when you prescribe *Trancopal*

case profile.[1] A 42-year-old truck driver and mover injured his back while moving a piano. The pain radiated from the sacral region down to the region of the Achilles tendon on the right side. X-rays for ruptured disc revealed nothing pertinent. The day of the injury he was given Trancopal immediately after the physical examination. Although 100 to 200 mg. three times a day were prescribed, the patient on his own responsibility increased the dosage of Trancopal to 400 mg. three times a day. This dosage was continued for three days and then gradually reduced over a ten day period. During this time, the patient continued to drive his truck. The muscle spasm was completely controlled and no apparent side effects were noted. For the past six months, the patient has continued to take Trancopal 100 to 200 mg. as needed for muscle spasm, particularly during strenuous days.

Indications — Musculoskeletal: Neck pain (torticollis) / Ankle sprain, tennis elbow / Bursitis / Rheumatoid arthritis / Low back pain (lumbago, etc.) / Fibrositis / Myositis / Osteoarthritis / Postoperative muscle spasm / Disc syndrome. *Psychogenic:* Dysmenorrhea / Anxiety and tension states / Asthma / Premenstrual tension / Angina pectoris / Alcoholism.

Now available in two strengths: Trancopal Caplets®, 100 mg. (peach colored, scored), bottles of 100. New strength—Trancopal Caplets, 200 mg. (green colored, scored), bottles of 100. **Dosage:** Adults, 100 or 200 mg. orally three or four times daily. Relief of symptoms occurs in from fifteen to thirty minutes and lasts from four to six hours.

THE FIRST TRUE "TRANQUILAXANT"

Trancopal®

Winthrop LABORATORIES • NEW YORK 18, N.Y.

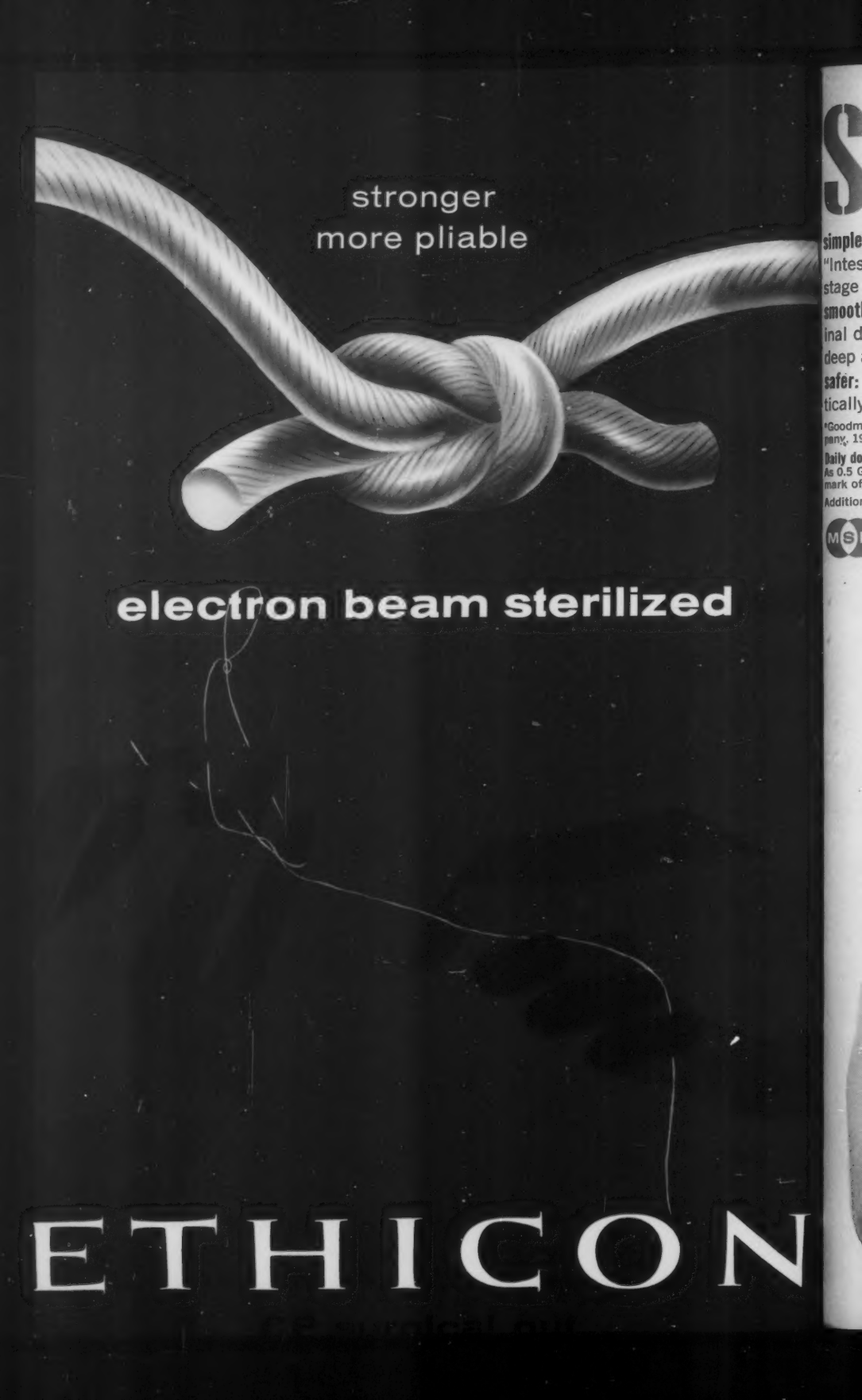
1. Collective Study, Department of Medical Research, Winthrop Laboratories.

Trancopal (brand of chlormezanone) and Caplets, trademarks reg. U.S. Pat. Off. 1416M

advancing with surgery

ETHICON®

sutures


stronger
more pliable
electron beam sterilized
ETHICON

SULFASUXIDINE

SUCCINYLSULFATHIAZOL

simpler: Preoperative administration of SULFASUXIDINE simplifies bowel surgery. "Intestinal anastomoses can be performed by the open technic and multiple-stage procedures reduced to a single-stage resection."*

smoother: After surgery, "the postoperative course is unusually smooth, abdominal distention absent, gas pains are mild, and the danger of peritonitis and deep abscesses from gross fecal contamination is minimized."*

safer: SULFASUXIDINE is exceptionally well tolerated—nausea and vomiting practically never occur... incidence of other reactions is only one percent.

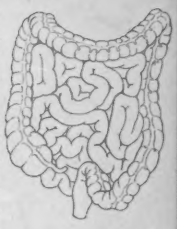
*Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, Ed. 2, The Macmillan Company, 1955, p. 1312.

Daily dosage: 4½ to 6 tablets six times daily. Children—0.25 Gm./Kg. daily in six divided doses. **Available:** As 0.5 Gm. tablets in bottles of 100 and 1000, and as a powder in 1-lb. bottles. SULFASUXIDINE is a trademark of Merck & Co., Inc.

Additional literature is available to physicians on request.

Merck Sharp & Dohme DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

a "standard" in



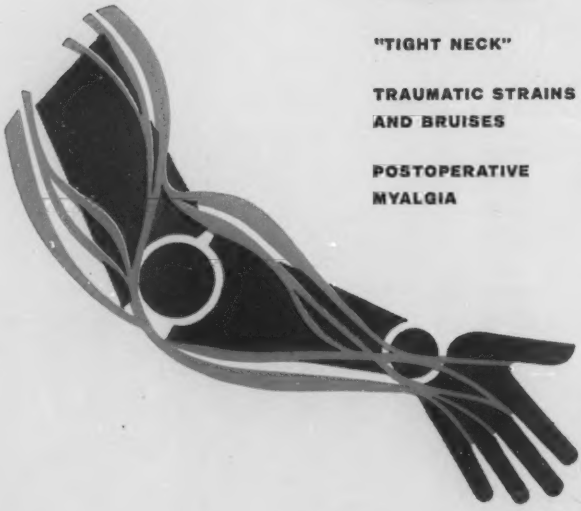
bowel surgery

NOW

. . . a new way to relieve pain and stiffness in muscles and joints

INDICATED IN:

- MUSCLE STIFFNESS
- LUMBOSACRAL STRAIN
- SACROILIAC STRAIN
- WHIPLASH INJURY
- BURSITIS
- SPRAINS
- TENOSYNOVITIS
- FIBROSITIS
- FIBROMYOSITIS
- LOW BACK PAIN
- DISC SYNDROME
- SPRAINED BACK
- "TIGHT NECK"
- TRAUMATIC STRAINS AND BRUISES
- POSTOPERATIVE MYALGIA



■ Exhibits unusual analgesic properties, different from those of any other drug ■ Specific and superior in relief of SOMAtic pain ■ Modifies central perception of pain without abolishing natural defense reflexes ■ Relaxes abnormal tension of skeletal muscle

SOMA™

N-isopropyl-2-methyl-2-propyl-1, 3-propanediol dicarbamate

■ More specific than salicylates ■ Less drastic than steroids ■ More effective than muscle relaxants

SOMA has an unique analgesic action. It apparently modifies central pain perception without abolishing peripheral pain reflexes. SOMA is particularly effective in relieving joint pain. Patients say that they feel better and sleep better with SOMA than with any previously used analgesic, sedative or relaxant drug.
SOMA also relaxes muscle hypertonia, with its stresses on related joints, ligaments and skeletal structures.

ACTS FAST. Pain-relieving and relaxant effects start in 30 minutes and last 6 hours.

NOTABLY SAFE. Toxicity of SOMA is extremely low. No effects on liver, endocrine system, blood pressure, blood picture or urine have been reported. Some patients may become sleepy on high dosage.

EASY TO USE. Usual adult dose is one 350 mg. tablet 3 times daily and at bedtime.

SUPPLIED: Bottles of 50 white sugar-coated 350 mg. tablets.

Literature and samples on request.

WALLACE LABORATORIES, NEW BRUNSWICK, N. J.

SYMPOSIUM REPORT:

ALTAFUR in antibiotic-resistant staphylococcal infections

ALTAFUR proved superior to any other single agent against staphylococcal infections encountered in the pediatric section of a general hospital. Introduced during an epidemic of severe staphylococcal pneumonia and bronchiolitis in younger children, ALTAFUR was employed in treating a total of 59 infants or juvenile patients, most of whom had upper or lower respiratory tract involvement. Almost all had been given antibiotics without effect; 34 were judged severely or critically ill. Cures were obtained in 54 of these patients after a 3 to 10 day course of ALTAFUR. There was only one failure (results were inconclusive in the remaining four cases). Mixed infections with Pneumococcus or Streptococcus sp. also responded readily.

ALTAFUR was administered orally in varying dosage: the optimal dose is believed to be about 22 mg./Kg. daily.

Side effects were minimal in these patients, being limited to gastric intolerance in a few cases, usually controllable by giving the drug with or after meals. Laboratory studies performed before and after ALTAFUR treatment revealed no adverse influence on renal, hepatic or hematopoietic function, nor other signs of toxicity.

In vitro, staphylococci isolated in this series proved uniformly susceptible to ALTAFUR, whereas many strains were resistant to a variety of antibotics. With ALTAFUR as with all nitrofurans, the lack of development of significant bacterial resistance is considered a major advantage over other antimicrobials.

Lysaught, J. N., and Cleaver, W.: Paper presented at the Symposium on Antibacterial Therapy, Michigan and Wayne County Academies of General Practice, Detroit, Sept. 12, 1959 (published Nov., 1959)

bright new star
in the antibacterial firmament

ALTAFUR™

brand of furaltadone

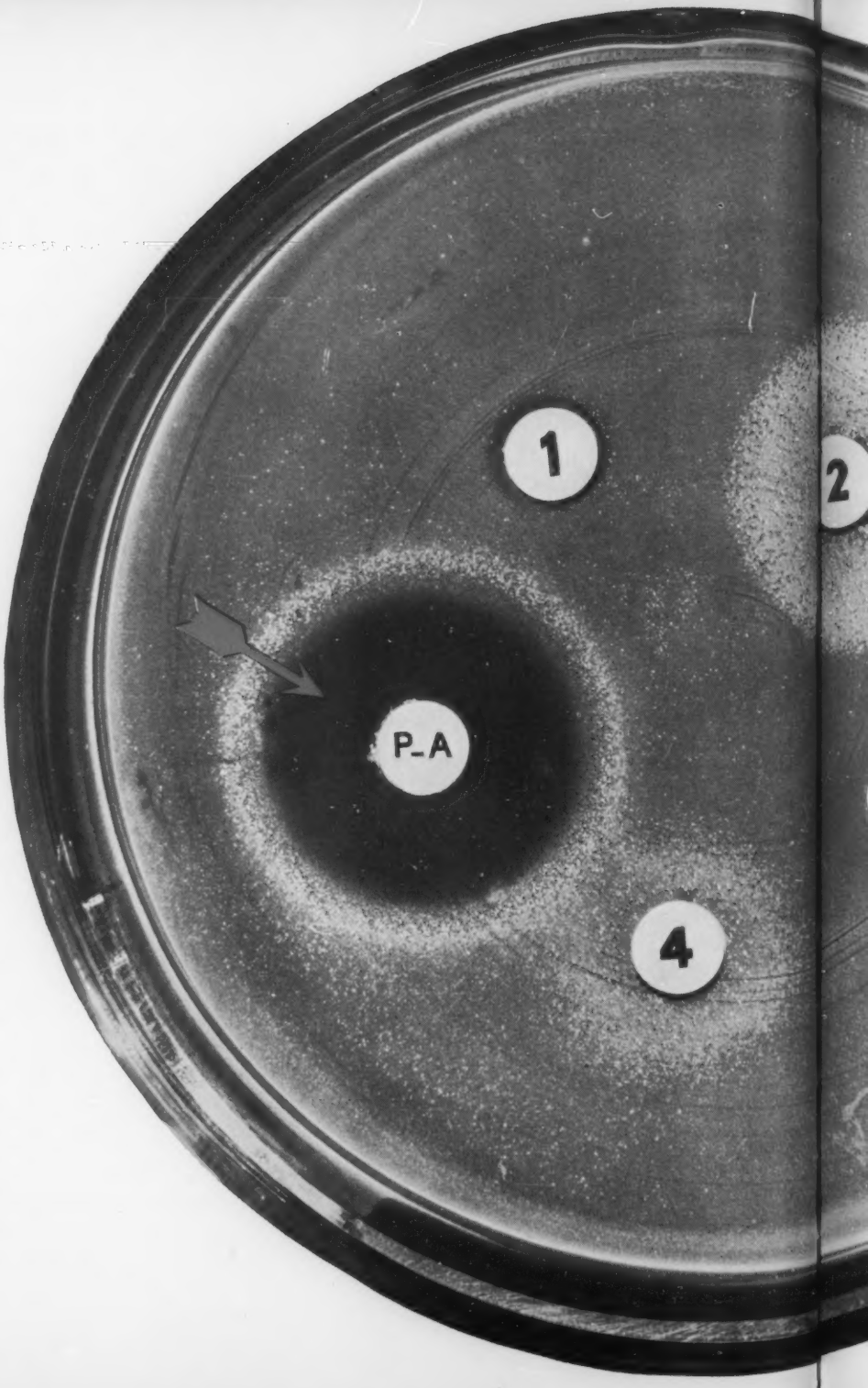
the first nitrofuran effective orally in systemic bacterial infections

- Antimicrobial range encompasses the majority of common infections seen in everyday office practice and in the hospital
- Decisive bactericidal action against staphylococci, streptococci, pneumococci, coliforms
- Sensitivity of staphylococci in vitro (including antibiotic-resistant strains) has approached 100%
- Development of significant bacterial resistance has not been encountered
- Low order of side effects
- Does not destroy normal intestinal flora nor encourage monilial overgrowth (little or no fecal excretion)

Tablets of 50 mg. (pediatric) and 250 mg. (adult)
Average adult dose: 250 mg. four times a day, with food or milk
Pediatric dosage: 22-25 mg./Kg. (10-11.5 mg./lb. body weight daily in 4 divided doses

CAUTION: The ingestion of alcohol in any form, medicinal or beverage, should be avoided during Altafur therapy.

NITROFURANS—a *unique* class of antimicrobials
EATON LABORATORIES, NORWICH, NEW YORK


1
2
P_A
4

This is Panalba performance in bronchitis

. . . into a mixed culture of the four organisms commonly involved in bronchitis . . . *Str. hemolyticus, D. pneumoniae, H. influenzae* and *Staph. aureus* (in this case a resistant strain) . . . we introduce the five most frequently used antibiotics.

Twenty-four hours later (in this greatly enlarged photograph), note that only *one* of the five leading antibiotics has stopped *all* the organisms, including the resistant staph! This is Panalba.

In your next patient with bronchitis . . . in *all* your patients with potentially-serious infections . . . provide this extra protection with your prescription:

Dosage—1 or 2 capsules 3 or 4 times a day.
Supplied—Capsules containing Panmycin phosphate equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin as novobiocin sodium, in bottles of 16 and 100.
Now available: new Panalba Half-Strength Capsules in bottles of 16 and 100.

Panalba*

(Panmycin* Phosphate plus Albamycin*)

The broad-spectrum antibiotic of *first* resort

Upjohn

The Upjohn Company
Kalamazoo, Michigan

*TRADEMARK, REG. U. S. PAT. OFF.

STOP AS WELL AS PREVENT VOMITING AND NAUSEA

The first specific antiemetic/antinauseant entity

New Tigan

no special precautions *no known contraindications*

TIGAN IS NOT A CONVERTED ANTIHISTAMINE, NOT A CONVERTED TRANQUILIZER, NOT A CONVERTED SEDATIVE, NOT A COMBINATION.

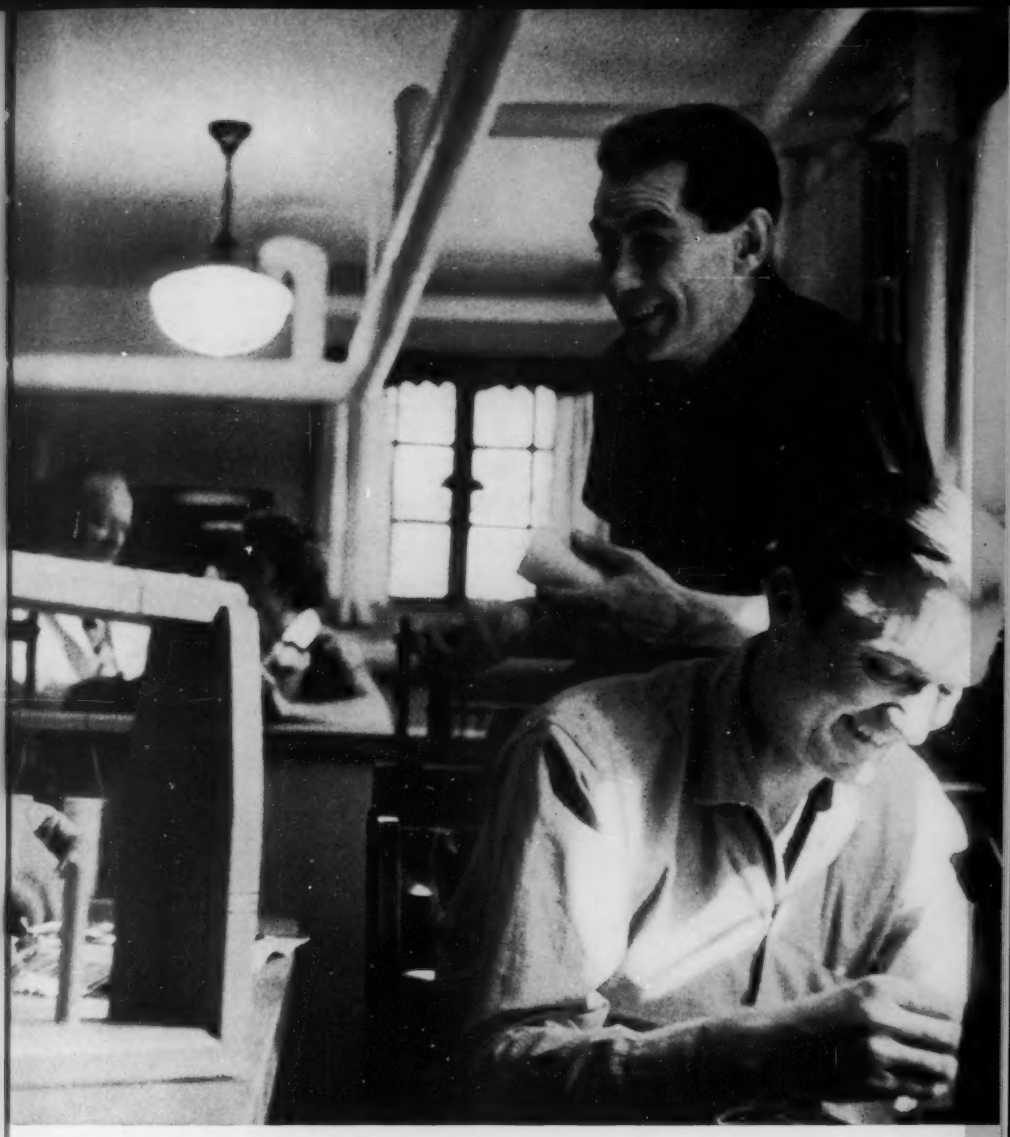
1. Chemically—different as well as new—a specific antiemetic entity.
2. Pharmacologically—different as well as new—no demonstrable effects other than antiemesis.
3. Therapeutically—different as well as new—stops *active* vomiting in addition to prophylactically preventing nausea and emesis.
4. Clinically—different as well as new—effective in the widest range of common and special situations, such as nausea and vomiting of pregnancy, G.I. disorders, drug-induced vomiting and travel sickness.
5. Practically—different as well as new—patients may drive, fly and work in hazardous situations, even when previously interdicted with other agents.

Available in oral, injectable and suppository forms.

ROCHE

TIGAN™—brand of trimethobenzamide ROCHE®

ROCHE
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley 10, N. J.



facilitates social improvement—
the initial goal
of therapy in mental patients

Trilafon®
perphenazine

Dosage: Depending on the severity of the condition and response of the individual case, the dose is 8 to 16 mg. two to four times daily. Consult Schering literature for other indications, as well as for details on dosage and administration, precautions and contra-indications.

Packaging: Tablets of 2 mg., 4 mg. and 8 mg., bottles of 50 and 500; 16 mg., bottle of 500. REPETABS® 8 mg.—4 mg. in the outer layer and 4 mg. in the timed-action inner core, bottles of 30 and 100. TRILAFON Injection—5 mg., ampul of 1 cc., boxes of 6 and 100; 10 cc. vial, 5 mg./cc., boxes of 1 and 10. TRILAFON Concentrate—16 mg./5 cc., bottle of 4 oz. with graduated dropper. TRILAFON Suppositories—4 and 8 mg., boxes of 6.

Contract Number GS00S-21454

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

Schering

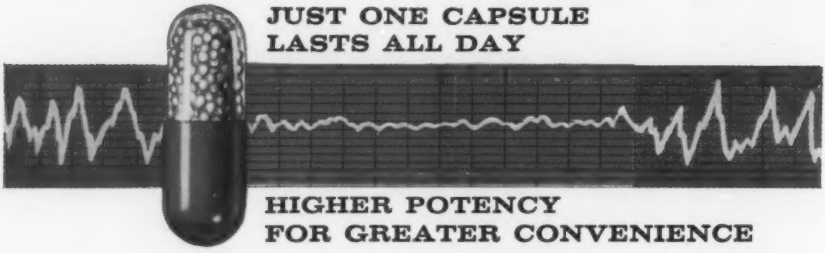
5-235

NEW AND EXCLUSIVE

FOR SUSTAINED TRANQUILIZATION

MILTOWN® (*meprobamate*) now available in 400 mg. continuous release capsules as

Meprospan®-400



- relieves *both* mental and muscular tension without causing depression
- does not impair mental efficiency, motor control, or normal behavior

Usual dosage: One capsule at breakfast, one capsule with evening meal

Available: *Meprospan-400*, each blue capsule contains 400 mg. Miltown (meprobamate)
Meprospan-200, each yellow capsule contains 200 mg. Miltown (meprobamate)
Both potencies in bottles of 30

WALLACE LABORATORIES, *New Brunswick, N. J.*

CME-8427

NEW... to control the pain and the pathogen in acute G. U. infection

AZO KYNEX®

Phenylazodiaminopyridine HCl-Sulfamethoxypyridazine Lederle

COMPLEMENT FOR KYNEX

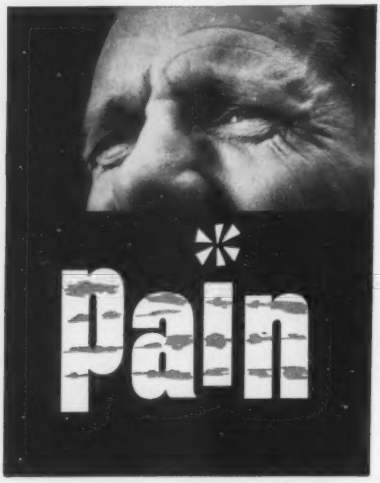
Adds fast-acting analgesia of phenylazodiaminopyridine HCl. Relieves burning, urgency and pain-spasm. Eases voiding and retention of infected urine.

... **to unexcelled sulfa control** of KYNEX. Lower dosage of just ½ Gm. daily ... prolonged action without hazard of crystalluria ... reduced toxic potential ... not surpassed by any other sulfa drug, singly or in combination.

Dosage: Two tablets q.i.d. first day; one tablet q.i.d. thereafter. Each tablet contains: 125 mg. KYNEX in the shell with 150 mg. phenylazodiaminopyridine HCl in the core.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

for your patient in



- 'Thorazine' greatly reduces your patient's suffering by alleviating anxiety which intensifies pain.
- 'Thorazine' potentiates narcotics and sedatives so that smaller amounts of these agents are effective.
- 'Thorazine' reduces apprehension and gives your patient an improved mental outlook.

THORAZINE* CHLORPROMAZINE, S.K.F.

one of the fundamental drugs in medicine

STANDARDIZED PRODUCT

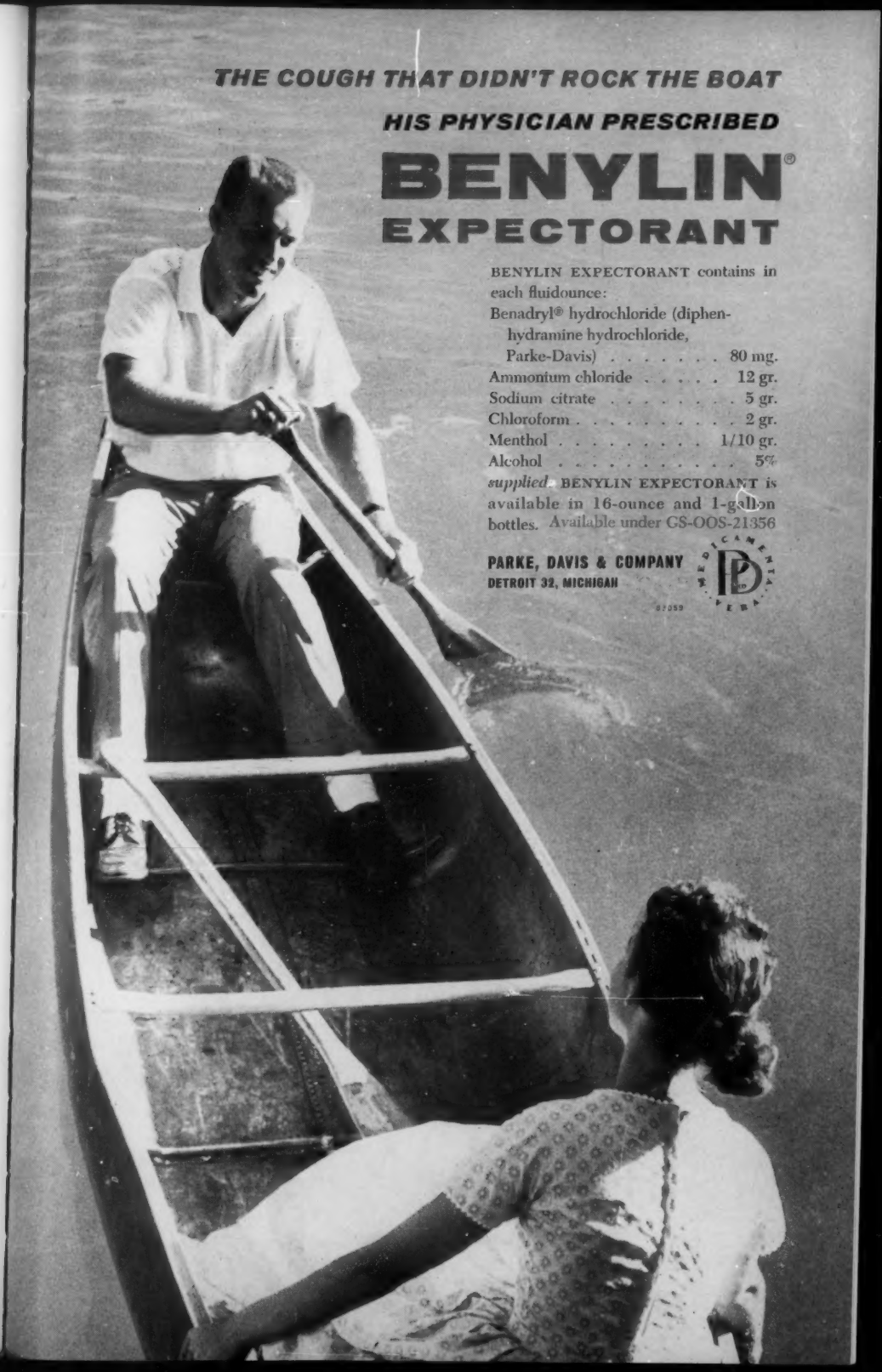
Standardized dosage forms of chlorpromazine hydrochloride, S.K.F. ('Thorazine'):

Ampuls 2 cc. (25 mg./cc.), boxes of 6; Tablets 25 mg., bottles of 50, and 100 mg., bottles of 500.

Dosage forms available on Federal Supply Schedule: Tablets 10 mg., 50 mg. and 200 mg.; Ampuls 1 cc. (25 mg./cc.); Multiple dose vials 10 cc. (25 mg./cc.); Syrup 10 mg./tsp. (5 cc.); Concentrate 30 mg./cc.; Suppositories 25 mg. and 100 mg.; Spansule* sustained release capsules 30 mg., 75 mg., 150 mg., 200 mg. and 300 mg.

SKF Smith Kline & French Laboratories

*T.M. Reg. U.S. Pat. Off.


THE COUGH THAT DIDN'T ROCK THE BOAT
HIS PHYSICIAN PRESCRIBED
BENYLIN®
EXPECTORANT
BENYLIN EXPECTORANT contains in each fluidounce:
Benadryl® hydrochloride (diphenhydramine hydrochloride, Parke-Davis) . . . . . 80 mg.
Ammonium chloride . . . . . 12 gr.
Sodium citrate . . . . . 5 gr.
Chloroform . . . . . 2 gr.
Menthol . . . . . 1/10 gr.
Alcohol 5%
supplied—BENYLIN EXPECTORANT is available in 16-ounce and 1-gallon bottles. Available under GS-OOS-21356
PARKE, DAVIS & COMPANY
DETROIT 32, MICHIGAN
87059

. . . get him back on the job sooner

THE DIRECT APPROACH

✓	RHEUMATOID ARTHRITIS
	TRAUMATIC ARTHRITIS
	ACUTE GOUTY ARTHRITIS
	STRAINS AND SPRAINS
	BURSITIS
	FIBROSITIS

to immediate corticosteroid benefits

INJECTION

Decadron® PHOSPHATE

DEXAMETHASONE 21-PHOSPHATE

- *ready for use immediately*
- *effective immediately*

mg. for mg. the most active steroid in true solution

- in joints or soft tissue—direct action at the site of inflammation
- systemically—rapid relief and prolonged effect—complete solubility affords quick diffusion of the therapeutic dose
- needs no reconstitution . . . no refrigeration
- potency up to 40 times that of hydrocortisone
- passes easily through small-bore needles

Injection DECADRON Phosphate can also be used in other joint diseases or soft-tissue conditions such as osteoarthritis, osteochondritis, "trigger" points (localized painful areas in muscles), tendinitis, whiplash injuries (acute), and muscle trauma. Caution: Steroids should not be given in the presence of tuberculosis, chronic nephritis, acute psychosis, peptic ulcer, or ocular herpes simplex.

DOSAGE AND ADMINISTRATION: Injection DECADRON Phosphate is ready for immediate use intramuscularly or intra-articularly. Dosage varies from 4 mg. or less to 20 mg. or more, depending on the nature and severity of the condition.

NOTE: Do not inject into intervertebral joints.

SUPPLIED: 5 cc. vials with 4 mg. dexamethasone 21-phosphate as the disodium salt per cc.

Literature on Injection DECADRON is available at your request.

DECADRON is a trademark of Merck & Co., Inc.

MSD MERCK SHARP & DOHME
Division of Merck & Co., Inc., Philadelphia 1, Pa.

"'Just a little case of cystitis' may actually have already involved the kidney parenchyma before the bladder became infected."[1]

"The first evidence of inflammatory disease of kidney or prostate often is vesical irritability."[2]

WHEN THE SYMPTOM IS CYSTITIS

FURADANTIN®

brand of nitrofurantoin

for rapid control of infection throughout the G. U. system

Rapid bactericidal action against a wide range of gram-positive and gram-negative bacteria including organisms such as staphylococci, Proteus and certain strains of Pseudomonas, resistant to other agents ■ actively excreted by the tubule cells in addition to glomerular filtration ■ negligible development of bacterial resistance after 7 years of extensive clinical use ■ excellent tolerance—nontoxic to kidneys, liver and blood-forming organs ■ safe for long-term administration

AVERAGE FURADANTIN ADULT DOSAGE: 100 mg. q.i.d. with meals and with food or milk on retiring. Supplied: Tablets, 50 and 100 mg.; Oral Suspension, 25 mg. per 5 cc. tsp.

REFERENCES: 1. Editorial: J.M.A. Georgia **46**:433, 1957. 2. Colby, F. H.: Essential Urology, Baltimore, The Williams & Wilkins Co., 1953, p. 330.

NITROFURANS—a unique class of antimicrobials—neither antibiotics nor sulfonamides

EATON LABORATORIES, NORWICH, NEW YORK

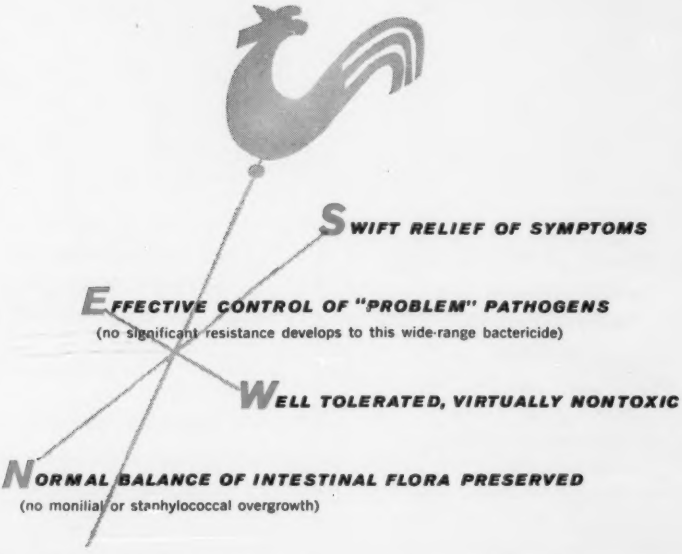
TO STOP DIARRHEA

from all points... growing evidence favors

FUROXONE®

brand of furazolidone

▪ Pleasant-flavored LIQUID, 50 mg. per 15 cc. (with kaolin and pectin) ▪ Convenient TABLETS, 100 mg. ▪ Dosage—400 mg. daily for adults, 5 mg./Kg. daily for children (in 4 divided doses).


SWIFT RELIEF OF SYMPTOMS
EFFECTIVE CONTROL OF "PROBLEM" PATHOGENS
(no significant resistance develops to this wide-range bactericide)
WELL TOLERATED, VIRTUALLY NONTOXIC
NORMAL BALANCE OF INTESTINAL FLORA PRESERVED
(no monilial or staphylococcal overgrowth)

From a Large Midwestern University: FUROXONE Controls Antibiotic-Resistant Outbreak. An outbreak of bacillary dysentery due to Shigella sonnei was successfully controlled with FUROXONE after a broad-spectrum antibiotic had proved inadequate. Cure rates (verified by stool culture) were 87% with FUROXONE, 36% with chloramphenicol. Only FUROXONE "failures" were those lost to follow-up. Chloramphenicol failures subsequently treated with FUROXONE responded without exception. FUROXONE was also used effectively as prophylaxis and to eliminate the carrier state. It was "extremely well tolerated in all 191 individuals who received it either prophylactically or therapeutically."

Galeota, W. R., and Moranville., B. A.: Student Medicine (in press)

THE NITROFURANS—A UNIQUE CLASS OF ANTIMICROBIALS EATON LABORATORIES, NORWICH, NEW YORK

Available on federal supply schedule, contract GS-00S-21424

....., 19.....

To The Association of Military Surgeons of the United States
Suite 718, New Medical Bldg., 1726 Eye Street, N.W.
Washington 6, D.C.

I hereby apply for MEMBERSHIP in THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, and enclose the sum of six dollars for my annual dues, including MILITARY MEDICINE. (Make checks payable to THE ASSOCIATION OF MILITARY SURGEONS, U.S.)

Name .....
(State both Christian and Surname in Full)

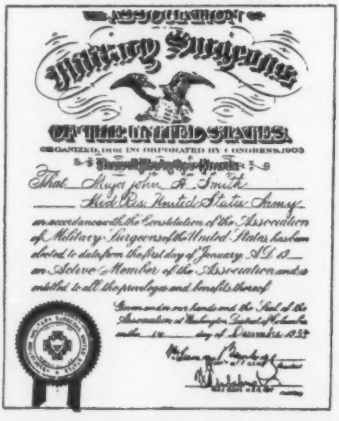
Title and Service .....

Address in full .....

Membership proposed by .....

.....

Certificate of Membership in the Association



These certificates, suitable for framing, 9 by 12 inches in size, are handsomely engraved, on imitation parchment paper and will contain the engrossed name and rank of the member. They are supplied at a cost of $2.00 each, payable in advance.

THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Organized in 1891
Incorporated by Act of Congress—1903

MEMBERSHIP ELIGIBILITY

Membership in the Association is open to:

a. Those who are or have been at any time commissioned officers (either Regular, Reserve, National Guard or U. S. Volunteers) or duly appointed fulltime civil members of the professional medical staffs of the Army, the Navy, the Air Force, the U. S. Public Health Service, the Veterans Administration, and the Bureau of Indian Affairs.

b. Officers of the Military Medical Services of other countries.

(Professional medical staffs include physicians, dentists, veterinarians, nurses, dietitians, occupational therapists, physical therapists and other allied medical professional personnel, including administrators.)

in "morning sickness"

keep her spirits up and her breakfast down with

COMPAZINE® SPANSULE® capsules

brand of prochlorperazine — brand of sustained release capsules

keep her spirits up

One 'Compazine' *Spansule* capsule on arising provides a daylong calming effect that helps to keep your patient on an even emotional keel.

keep her breakfast down

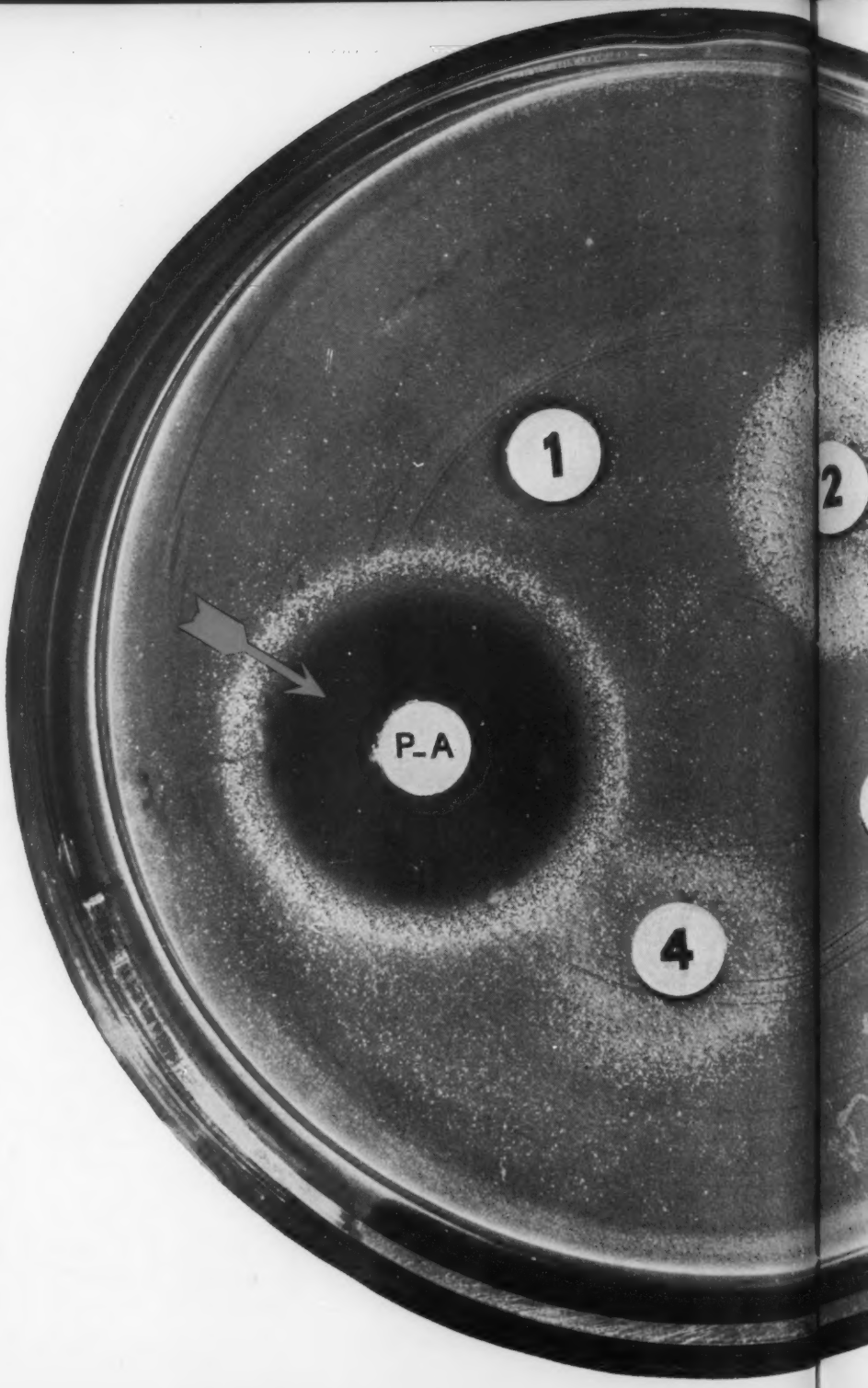
One 'Compazine' *Spansule* capsule at bedtime provides antiemetic action that lasts throughout the night and into the morning—thus protecting against "morning sickness."

'Compazine' Spansule capsules—

10 mg. capsule: ideal for twice-a-day (q12h) administration.
15 mg. capsule: ideal for once-a-day administration.
Also available: Tablets, Ampuls, Multiple dose vials, Suppositories and Syrup.

Smith Kline & French Laboratories

AVAILABLE ON FEDERAL SUPPLY SCHEDULE
GS-00S-21410, Item No. 42-2


1
2
P_A
4

This is Panalba performance in sinusitis

. . . into a mixed culture of the four organisms commonly involved in sinusitis . . . *Str. hemolyticus, D. pneumoniae, H. influenzae* and *Staph. aureus* (in this case a resistant strain) . . . we introduce the five most frequently used antibiotics.

Twenty-four hours later (in this greatly enlarged photograph), note that only *one* of the five leading antibiotics has stopped *all* the organisms, including the resistant staph! This is Panalba.

In your next patient with sinusitis . . . in *all* your patients with potentially-serious infections . . . provide this extra protection with your prescription:

Dosage—1 or 2 capsules 3 or 4 times a day.
Supplied—Capsules containing Panmycin phosphate equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin as novobiocin sodium, in bottles of 16 and 100.
Now available: new Panalba Half-Strength Capsules in bottles of 16 and 100.

Panalba*

(Panmycin® Phosphate plus Albamycin®)

The broad-spectrum antibiotic of *first* resort

Upjohn

The Upjohn Company
Kalamazoo, Michigan

*TRADEMARK, REG. U.S. PAT. OFF.

Rx

For Financial Peace of Mind

When Disabling Accidents or Illnesses Strike
The Group Insurance Program of
The Association of Military Surgeons of the U. S.

. . . unreservedly recommended—N.Y.
. . . the method in which my claim was handled was exemplary—Pa.
. . . an excellent job of handling my claim—New Mexico
. . . most efficient—N.J.
. . . the first of three companies to pay my claim—Ill.
. . . the courtesy, service and prompt settlement cannot be adequately described—N.Y.
. . . I cannot adequately express my appreciation and gratitude—Alaska
. . . I have a special reason for being particularly satisfied—N.C.
. . . It's a real pleasure to do business with an organization such as yours—Wis.

1. GROUP DISABILITY PLAN*
2. GROUP HIGH LIMIT ACCIDENTAL DEATH & DISMEMBERMENT PLAN*

Write to The Association of Military Surgeons of the U. S.

ASSOCIATION SERVICE OFFICE
Suite 914 1500 Walnut Street
Philadelphia 2, Pa.

* Applications for coverage accepted from those members in a *civilian* status under Age 60 for Plan 1, Age 70 for Plan 2.

The Insignia of the Association of Military Surgeons, U. S.
May be obtained on application to the Secretary

Badge: Large	$7.50
Miniature	$5.00
Lapel button or pin	$2.50
Lapel bar	$1.50
Rosette	$1.00

The Association of Military Surgeons
Suite 718, New Medical Bldg.
1726 Eye Street, N.W.
Washington 6, D.C.

Z. D. GILMAN

Established 1822

Drugs, Medicines and Chemicals

Wholesale and Retail

627 Pennsylvania Ave. N.W.

Reagents & Biological Supplies
Government Contractors, Hospital Supplies

WASHINGTON, D.C.

ALPHABETICAL LIST OF ADVERTISERS

Astra Pharmaceutical Products, Inc. Insert 9f, 10f
Ciba Pharmaceutical Products, Inc. ..... Cover 2, 4f, 5f, 16f, 17f
Eaton Laboratories 6f, 24f, 25f, 36f, 1b, 7b
Ethicon, Inc. Insert 19f, 20f
Gilman, Z. D. 6b
Lederle Laboratories Div. American Cyanamid Company 7f, 15f, 31f
McNeil Laboratories, Inc. 8f
Merck Sharp & Dohme 3f, 21f, 34f, 35f
Ortho Pharmaceutical Corp. 12f
Parke, Davis & Co. 33f
Pfizer Laboratories Div. Chas. Pfizer & Co., Inc. 13f
Roche Laboratories 28f
Schering Corporation 29f
Shield Laboratories 14f
Smith Kline & French Laboratories ..... 32f, 3b, Cover 3
Tailby-Nason Company, Inc. 1f
Upjohn Company, The 26f, 27f, 4b, 5b
Wallace Laboratories, Inc. 11f, 22f, 23f, 30f
Warner-Chilcott ..... Cover 4
Winthrop Laboratories 18f, 8b

when pregnancy is contraindicated...

Lorophyn®

SUPPOSITORIES

Their simplicity of use assures the high degree of patient cooperation which is essential to any program of conception control. Greaseless, odorless and deodorizing, LOROPHYN Suppositories melt within 15 minutes to form a tenacious spermicidal barrier which has proved highly efficacious in clinical studies.*

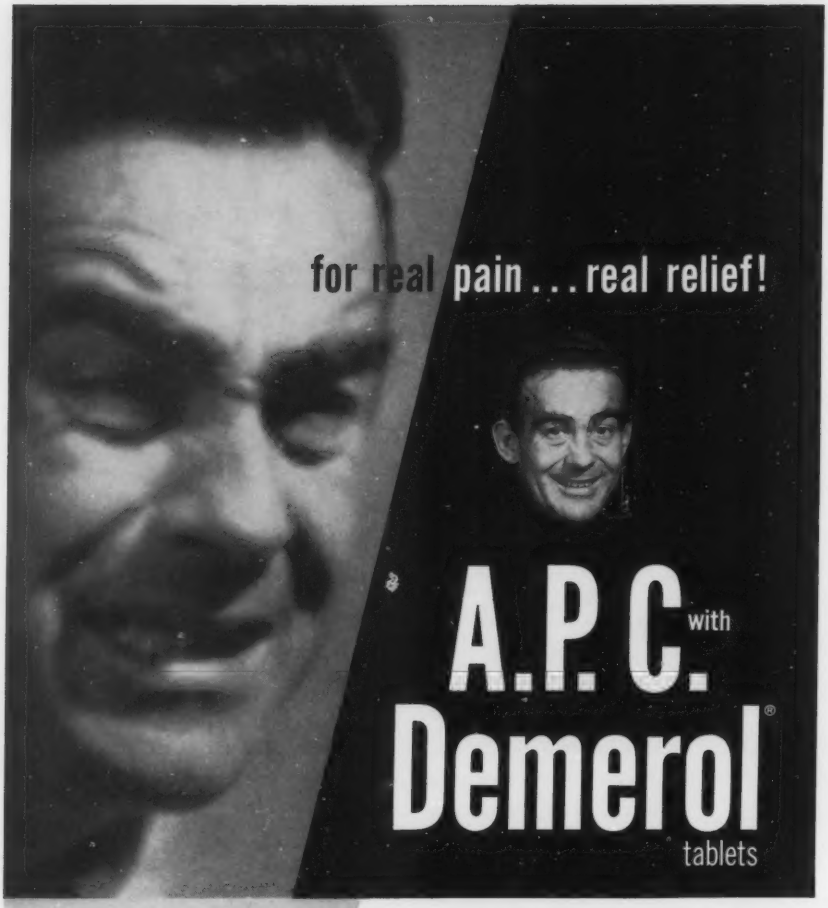
Stable in any climate, LOROPHYN Suppositories contain phenylmercuric acetate 0.02%, methylbenzethonium chloride (an effective deodorant) 0.2% and methylparaben in a water-dispersible base. Box of 12 hermetically sealed suppositories, 2 Gm. each.

Also available: LOROPHYN Jelly containing phenylmercuric acetate 0.05%, polyethylene glycol of mono-iso-octyl ether 0.3%, methylparaben 0.05% and sodium borate 3% in a special jelly base. Tube of 3¼ oz.

*Eastman, N. J., Seibels, R. E.: J. Am. M. Ass. **139**:16, 1949. Eastman, N. J.: South. M. J. **42**:346, 1949.

EATON LABORATORIES, NORWICH, NEW YORK

Available on federal supply schedule, contract GS-OOS-21424



appreciably more effective than A.P.C. with codeine

or Codeine Substitutes

each tablet contains:

Aspirin	200 mg.	(3 grains)
Phenacetin	150 mg.	(2½ grains)
Caffeine	30 mg.	(½ grain)
Demerol hydrochloride	30 mg.	(½ grain)

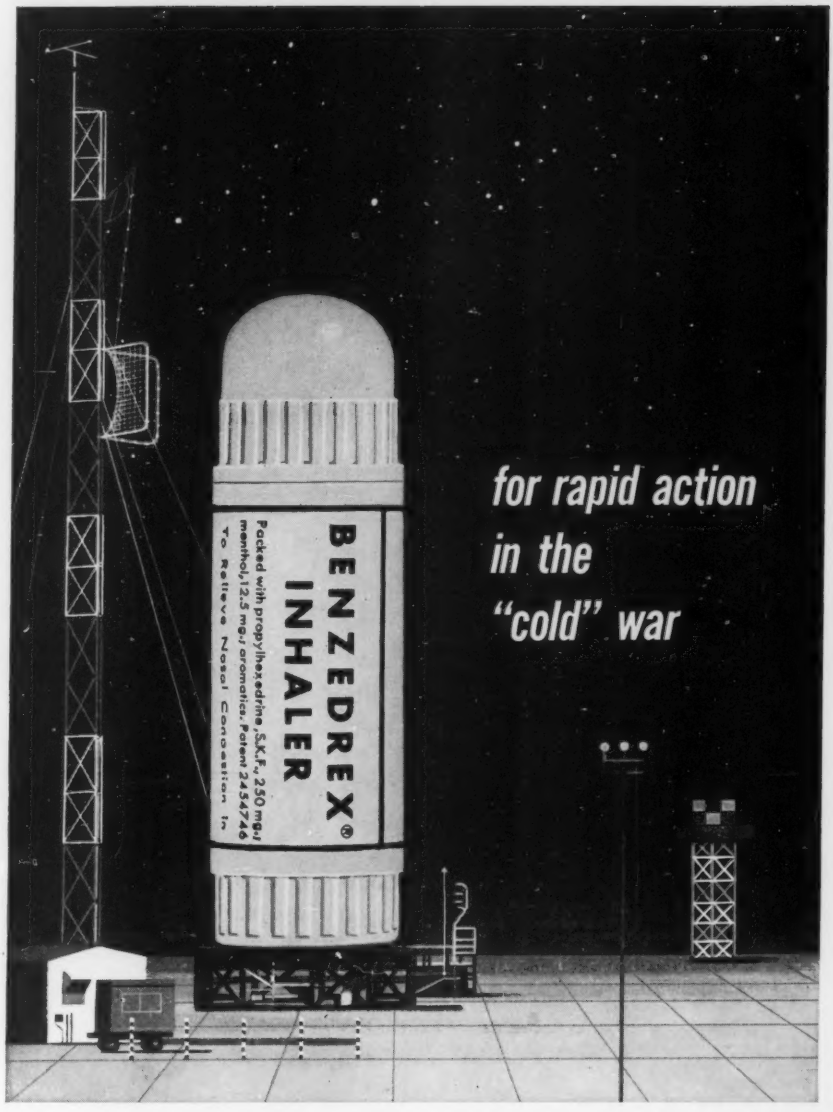
adult dose: 1 or 2 tablets repeated in three or four hours as needed.

supplied: Bottles of 100 and 1000 tablets, scored.

Narcotic Blank Required.

Winthrop LABORATORIES
New York 18, N.Y.

Demerol (brand of meperidine), trademark reg. U. S. Pat. Off.



Benzedrex* Inhaler (propylhexedrine inhalant, S.K.F.)

is a standardized product with the Army, Navy and Air Force. It relieves nasal congestion in seconds. It's safe; it's convenient.

(Available as F.S.N. 6505-261-7251)

Smith Kline & French Laboratories *T.M. Reg. U.S. Pat. Off.

after the coronary
Peritrate improves blood flow
...with no significant
drop in blood pressure

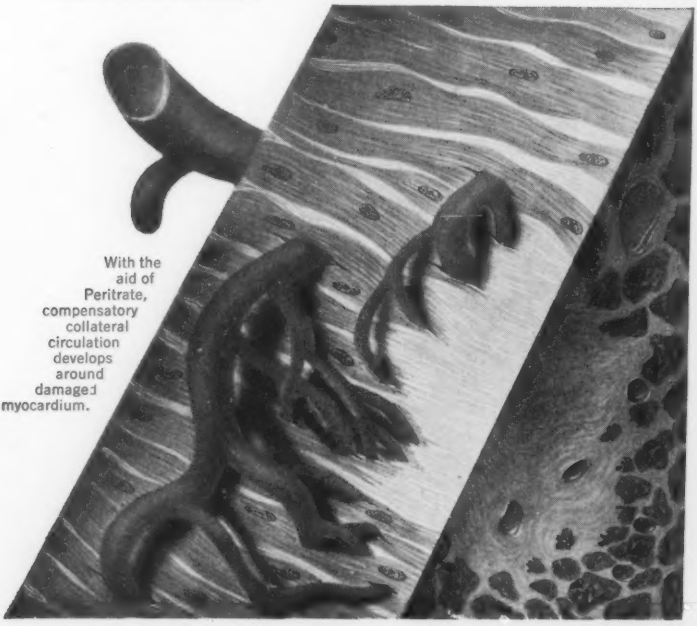
Peritrate aids in the establishment of vital collateral circulation in the postcoronary patient.

Unlike nitroglycerin, Peritrate is a selective vasodilator that works almost exclusively on coronary vessels with only minimal peripheral effects. It increases coronary blood supply without significant fall in blood pressure or increase in pulse rate. Prescribe Peritrate 20 mg. q.i.d. for your postcoronary patients.

WARNER
CHILCOTT
MORRIS PLAINS, N.J.

Peritrate® 20 mg.

brand of pentaerythritol tetranitrate



With the aid of Peritrate, compensatory collateral circulation develops around damaged myocardium.

8509

VOL. 124 December, 1959 NO. 12

MILITARY MEDICINE

ORIGINAL ARTICLES

Authors alone are responsible for opinions expressed in their contributions

Observations on Mice Exposed to Cosmic Radiation in the Stratosphere

A Longevity and Pathological Study of 85 Mice*

By

CAPTAIN IRWIN J. LEBISH, VC, *U. S. Army;* LIEUTENANT COLONEL DAVID G. SIMONS, MC, *U. S. Air Force;*† HERMAN YAGODA, Ph.D.; PETER JANSSEN, M.D.; WEBB HAYMAKER, M.D.‡

(With 23 illustrations)

THIS study was undertaken in order to determine whether primary cosmic ray particles coming into the upper limits of the earth's atmosphere have the capacity of inducing biological effects.

FLIGHT CONDITIONS

A large polyethylene plastic balloon carrying the animals was launched at 5:45 A.M. on August 22, 1955,‡ from International Falls, Minnesota, on AMFL Flight 67 (WRI-506),[3,14] geomagnetic latitude, 58°N. In the capsule suspended from the balloon, in a wire-mesh cage divided into individual compartments $3 \times 3 \times 2''$ in size, were 89 white Swiss Bagg-strain heterozygotes, descendants of a BALB/c line which was random bred for several years in the same colony.[13] Of the 89 mice, 35 were females and 54, males. All were approximately 45 days old. The animals were not weighed at the time of the flight, but it was estimated subsequently that their average weight was 32.4 gm. For sustenance during the flight the mice were given water-soaked potato. Inside the sealed gondola an atmospheric pressure of 13 to 14 p.s.i. was maintained through a demand-valve system which brought oxygen from a cylinder attached to the outside of the capsule.[10] At the time of ascent the oxygen concentration inside the capsule was 80 per cent; and after 8 hours, 50 per cent, a level maintained during the remainder of the flight. Carbon dioxide generated by the mice was removed by soda lime, as was also water vapor, which was kept to about 50 per cent relative humidity inside the capsule. The temperature of the interior of the capsule was maintained at $65 \pm 8°$ F through the 24-hour period above 80,000 ft.

By 8:05 A.M. the balloon reached approximately 109,000 ± 1,500 ft., remained at that altitude until about 2:00 P.M., then leveled off at about 102,000 ft. The descent began at about 10:00 P.M., and by 5:00 A.M. on August 23 the balloon had reached approxi-

* From the Armed Forces Institute of Pathology, Washington 25, D.C. (I.J.L., P.J., and W.H.); Holloman AFB, New Mexico (D.G.S.); and Air Force Cambridge Research Center, Hanscom Field, Bedford, Mass. (Geophysics Research Directorate) (H.Y.)

† New address: Randolph Air Force Base, Texas.

This work was supported in part by funds from USAF Project 7851, Aeromedical Field Laboratory, Holloman Air Force Base, New Mexico.

‡ See "Operation Stratomouse" by Webb Haymaker, M.D., which appeared in MILITARY MEDICINE, Vol. 119: 151-171, September 1956.

mately 77,000 ft. The capsule, to which a parachute was attached, reached ground level at a point 2 miles southeast of Middle River, Minnesota, after a flight of 25 hours, 21 minutes. A telemetered record of the external pressure indicated that the balloon had been above 100,000 ft. for approximately 13 hours, and above 80,000 ft. for approximately 23 hours.

Recovery and Maintenance of the Mice

When the capsule was opened, 66 of the mice were found in good condition, 19 chilled, feeble, and wet from their urine, and 4 dead. Within a few hours the 19 ill animals, kept in a separate cage, appeared normally active. Thus, 85 mice of the experimental group were available for study.

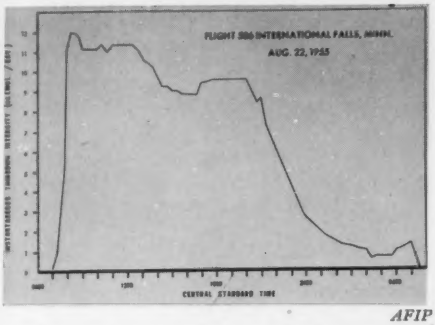
On the next day, 52 of the control mice (same age and strain as the experimental mice), which, like the experimentals, had been transported by air from Washington, D.C., to International Falls, were placed in the same capsule which had gone into the stratosphere and were exposed for the same period of time to the equivalent internal pressure and temperature conditions experienced by the mice which were taken on the flight. When, after 24 hours, the capsule was opened, 11 of the mice were chilled, feeble, and wet, and 1 was dead. Improvement in the condition of these mice set in after much the same time interval as for the 19 experimental mice.

On September 2 all the mice were returned to the Armed Forces Institute of Pathology, Washington, D.C., by plane. Both before and after the flight, the experimental and control mice were housed in the same room. After the flight the mice were kept in large plastic containers, each housing 15 to 20 of them. Some 2 weeks later the mice were transferred to individual glass jars with cedar-wood shavings used for bedding, and during the remainder of their lives they were provided with fresh jars and clean bedding twice weekly. They were given free access to food and water. The diet consisted entirely of Purina Laboratory Chow in pellet form. The experimental and control groups, housed 5 to 10 feet from each other, were inspected twice daily. When approximately 3 months of age, all females were bred to males of the same group. Nonpregnant animals and those females whose young had died before weaning were re-bred, in the second series of matings, to males of proven fertility. All the mice were allowed to live out their normal life span without recourse to any medication. Most of the mice died spontaneously, and the remainder were sacrificed when they were obviously moribund.

Blocks from body tissues of all the animals were fixed in 10 percent neutral formalin. The sections were stained by hematoxylin-eosin and by other methods as necessary. The brains were fixed in Carnoy's solution. Subsequently many of them were lost. Available for this study were the cerebrums of 3 mice and the cerebellums and brain stems of 11 others. The duration of life of these 14 mice, all from the experimental group, was from 3 to 11 months. All blocks were serially sectioned at 6 microns, and all the sections were stained by the Van Gieson-hematoxylin method. Each section was examined microscopically under low magnification, and in areas where changes were suspected, under high magnification.

The Heavy Primary Thindown Exposure

This particular flight was not monitored for heavy primary thindown hits by means of simultaneous exposure of nuclear track plates. The magnitude of this parameter was, however, estimated from the measured flight altitude profile with the aid of an experimentally determined function relating the variation of the thindown intensity with balloon altitude[15] based on flights launched from Minnesota at geomagnetic latitude 55°N. Since two of the points employed in the derivation of this function were from balloon flights made on July 18 and 19, 1955, only 1 month before the present animal



AFIP

FIG. 1. Thindown intensity encountered by the animals during the balloon flight.

flight, the interpolation was made with a fair degree of confidence.

The variation of thindown intensity during Animal Flight 506 is shown in Figure 1. In the early part of the trajectory, when the balloon was above 100,000 ft., the animals received a thindown hit intensity corresponding to about 9 to 12 hits per cc. of emulsion per day of flight. During the night, when the balloon dropped to 80,000 ft., the intensity diminished to about 2 emulsion units. The average thindown intensity for the period during which the balloon was at elevations $\gtrsim$60,000 ft. is estimated to be 6.5 emulsion units. (An emulsion unit is defined as the number of heavy primary thindowns of charge $Z \gtrsim 6$ observed per cc. of Ilford G5 emulsion per 24 hours of exposure.) Allowing for the difference in atomic stopping power of emulsion and tissue, this value is reduced to 2.7 thindown hits per cc. of tissue of unit density for the 24.5-hour exposure above 60,000 ft. elevation. These thindown hits are contributed by the entire charge spectrum of heavy primary nuclei from carbon to iron, $Z \gtrsim 6$.

The total volume of tissue exposed can be estimated from the numbers and weight of the male and female mice recovered alive after the flight in the stratosphere. This estimate for the 85 surviving animals is shown in Table 1, together with corresponding estimates of the brain and lungs derived from the weight of these organs removed from autopsied animals of the same strain and practically the same age as those exposed in the stratosphere. If we consider all heavy primary thindown hits produced by particles of nuclear charge $Z \gtrsim 6$ to be biologically effective, this analysis indicates that an individual mouse would receive, on the average, 87 hits in its entire body, of which 1.3 may terminate in the brain and 0.7 in the lung. This is a very small dose, and unless the hit occurred by chance in an especially radiosensitive area, producing some very distinctive change in the tissue, it would, in general, not be possible to recognize biological damage above background.

The probability of receiving a biologically effective hit is still further reduced if we assume that only the more highly charged nuclei (calcium to iron of $Z \gtrsim 20$) are capable of initiating this action. An analysis of the heavy primary thindown charge spectrum observed in emulsions flown at 94,000 ft. is to be seen in Table 2. Since the average altitude achieved by the balloon in this animal study was roughly equivalent to a 94,000 ft. exposure, it is reasonable to assume that only about 0.8 per cent of the thindown hits will be produced by particles of $Z \gtrsim 20$. The last column of Table 1 shows the number of these special hits received by the 85 animals considered as a homogenous group. An individual mouse would have a probability of 0.7 for receiving a heavy nucleus whole-body

TABLE 1

TOTAL THINDOWN HITS RECEIVED BY 85 OF THE FLOWN ANIMALS

Organ	Total Volume cc.	Total Number of Thindown Hits	
		All Heavy Nuclei	Ca to Fe Nuclei
Whole body*	2745	7350	59.0
Brain	42	113	0.9
Lungs	21	57	0.5

* The male mice had an average weight of 38.0 gm. and the females 23.5 gm. The wet brains weighed 0.533 and 0.437 gm. for the males and females, respectively. The lungs of the mice had an average weight of 0.272 and 0.221 gm. for the male and female animals, respectively.

TABLE 2

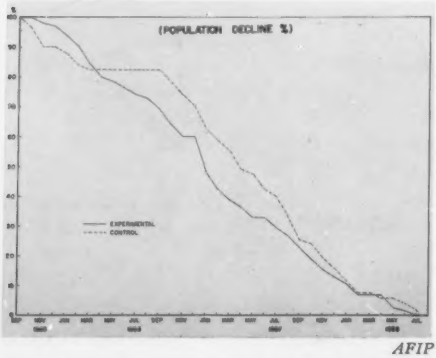
HEAVY THINDOWN CHARGE SPECTRUM IN EMULSIONS FLOWN AT 94,000 FT.

Heavy Primary Nuclei	Nuclear Charge, Z	Percentage Abundance
C, N, O	6, 7, 8	72.4
F, Ne	9, 10	9.2
Na to K	11–19	17.6
Ca to Fe	20–26	0.8

hit, 0.01 for a brain hit, and 0.006 for a lung hit. This more rigid criterion indicates that the mice did not receive any appreciable exposure to the calcium-iron group of heavy nuclei during the flight.

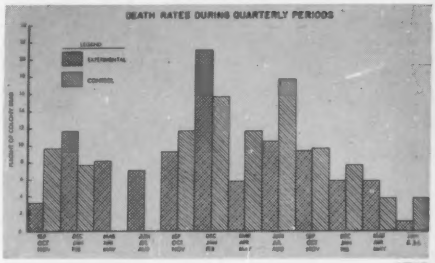
RESULTS AND DISCUSSION

1. *Longevity.* The population decline in the experimental and control mice is illustrated in Figure 2, and death rates during the quarterly periods, in Figure 3. The initial downswing in the control curve in Figure 2 was attributed to several deaths from bite wounds before the animals were separated into individual cages approximately 2 weeks after return to the Armed Forces Institute of Pathology. The steady downward slope in the experimental group during the first 6 months was due mainly to lesions compatible with those of murine endemic pneumonia. Even though early losses were



AFIP

FIG. 2. Longevity study of experimental and control animals. The population decline is given in percentage figures.



AFIP

FIG. 3. Percent of the entire colony dying during each 3-month period. The vacant spaces indicate that no deaths occurred during the indicated period of time.

sustained in both groups, the curves tended to parallel each other. Analysis, through the "T" test, of the death rates by monthly and quarterly periods indicated a somewhat higher death rate in the experimental than in the control mice, which was considered significant at the .001 level. The time by which half the animals had died was 543 days for the experimental group and 630 days for the controls.

Uniformity of environmental conditions existed in the two groups. Thus, (1) the animals were assigned to experimental or control groups by random selection; (2) both the experimental and the control animals were housed together up to flight time and were in close contact until that time; (3) a concerted effort was made to duplicate for the control group all the environmental conditions inside the balloon capsule to which the experimental group had been exposed; (4) immediately after the flight the two groups of animals were in fairly close contact; and (5) during the remainder of their lives they were housed in the same rooms within a few feet from one another.

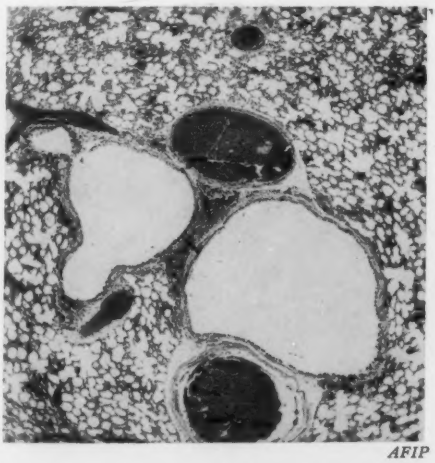
2. *Murine Endemic Pneumonia.* Probably one of the most important factors in the higher death rate in the experimental group was murine endemic pneumonia, a viral disease latent in most rodent colonies.[6] Statistically, the higher incidence of the pneumonias in our experimental group, using Yates' adjustment, was significant at the .025 level. In experimental and control ani-

mals alike in our series, the pulmonary disease was characterized pathologically by marked bronchiectasis with the accumulation of lymphocytes and plasma cells in peribronchial tissue and vascular sheaths and by diffuse or partly interstitial pneumonitis (Figs. 4A & 4B). Purulent bronchopneumonia was occasionally superimposed on the pneumonitis.

3. *Neoplasms.* Many different types of neoplastic processes were observed (Table 3). Only the mammary and lung tumors were sufficiently numerous to be analyzed statistically. All of the *mammary tumors* observed in the two groups of animals were in the same category of adenoma or adenocarcinoma as described by others.[4] The mammary tumors were single or multiple, often large, and most of them were in the flank or axilla. Only rarely did they invade the subcutaneous tissue. In 4 experimental and 5 control animals the tumor had metastasized to the lungs, where it usually grew luxuriantly. Grossly, the central region of the tumors, whether primary or metastatic, was invariably necrotic. Histologically, the appearance of the tumors varied with the age of the animal. In younger animals, many of the tumors were characterized by simple lobular or ductal hyperplasia, and even in metastatic growths the alveolar pattern was retained (Fig. 5A). With increasing age of the animal, loss of cellular polarity, pleomor-

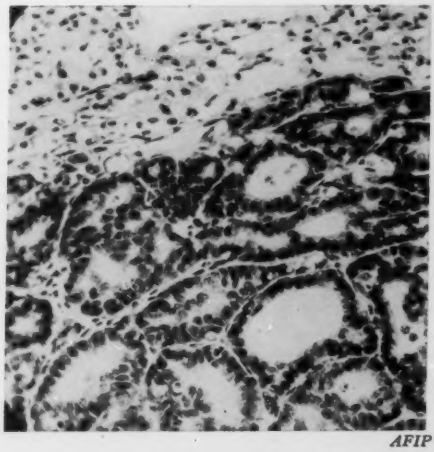
AFIP

FIG. 4B. Murine endemic pneumonia in a mouse of the experimental group which died 23 weeks after the flight showing peribronchial and perivascular mononuclear-cell infiltrates. AFIP Acc. 735073 (42), hematoxylin-eosin stain.



AFIP

FIG. 4A. Murine endemic pneumonia in a mouse of the experimental group which died 26 weeks after the flight. Early bronchiectasis and peribronchial infiltrate of mononuclear cells. AFIP Acc. 743478 (×44), hematoxylin-eosin stain.



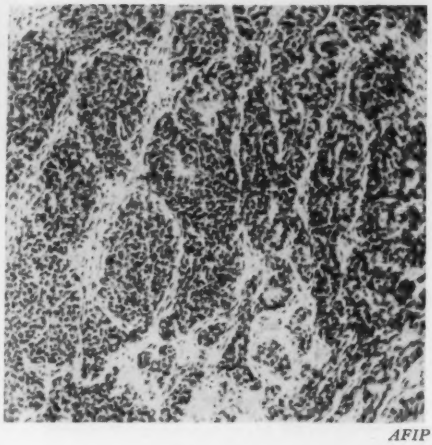
AFIP

FIG. 5A. Metastatic adenocarcinoma in the lung of a mouse of the experimental group which died 16 months after flight. AFIP Acc. 796168 (×260), hematoxylin and eosin stain.

TABLE 3

TYPES AND SITES OF LESIONS

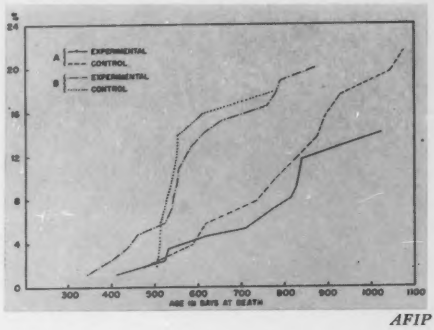
Types of Lesion	Experimental Animals		Control Animals	
	No.	%	No.	%
1. NEOPLASTIC				
Adenocarcinoma, mammary gland,	17	20.0	9	17.6
lung metastasis	4	4.7	5	9.8
Adenocarcinoma, primary, parotid salivary gland	1	1.2	0	0.0
Adenoma, Harderian gland, orbit	2	2.3	3	5.9
Adenoma, renal tubules	0	0.0	2	3.9
Adenocarcinoma, renal tubules	3	3.5	1	1.9
Alveolar cell tumor, primary, lung	23	27.0	19	37.2
Fibroma, tail	1	1.2	0	0.0
Hemangioma, ovary	1	1.2	0	0.0
Hepatoma	1	1.2	0	0.0
Leiomyoma, uterus	1	1.2	2	3.9
Malignant lymphoma, generalized	4	4.7	4	7.8
Osteogenic sarcoma, primary in tail with metastases to lungs, liver, spleen, and kidney	0	0.0	1	1.9
Reticulum cell sarcoma	1	1.2	1	1.9
Sebaceous cell tumor, prepuce	1	1.2	2	3.9
2. INFLAMMATORY				
Murine pneumonia syndrome (bronchiectasis, peribronchitis and bronchopneumonia)	15	17.6	1	1.9
Bronchopneumonia, hemorrhagic	1	1.2	0	0.0
Pneumonia, acute	3	3.5	2	2.9
Pneumonia, inhalation type	2	2.3	1	1.9
Abscesses, multiple, kidney	0	0.0	1	1.9
Abscesses, multiple, liver	1	1.2	4	7.8
Abscesses, pancreas	1	1.2	0	0.0
Abscesses, multiple, peritoneal cavity associated with oxyurid migration	1	1.2	0	0.0
Hemorrhagic enteritis	4	4.7	0	0.0
Metritis, purulent	1	1.2	0	0.0
Orchitis and epididymitis	1	1.2	0	0.0
Panophthalmitis	1	1.2	0	0.0
Peritonitis, chronic	1	1.2	0	0.0
Pyelitis, purulent	2	2.3	0	0.0
Tracheitis, ulcerative, chronic	2	2.3	0	0.0
3. DEGENERATIVE				
Amyloidosis, generalized (liver, spleen, kidney, heart)	0	0.0	2	3.9
Atrophy, seminiferous tubules	0	0.0	1	1.9
Fatty changes, liver	1	1.2	0	0.0
Hyaline degeneration of renal blood vessels.	1	1.2	0	0.0
Myocarditis with myocardial degeneration	2	2.3	2	3.9
Nephrosis, degenerative	0	0.0	1	1.9
4. MISCELLANEOUS				
Cystic hyperplasia, endometrium	1	1.2	1	1.9
Cysts, glomerular and tubular, kidney	0	0.0	1	1.9
Focal necrosis, liver (post mortem?)	1	1.2	1	1.9
Hyperplasia, simple, liver	1	1.2	0	0.0
Rectal prolapse	2	2.3	3	5.9
Thrombosis, mural, left atrium	1	1.2	0	0.0
Thrombosis, pulmonary artery	1	1.2	0	0.0
Urethral obstruction (prolapse and necrosis of penis, retention of urine with uremia)	4	4.7	4	7.8



AFIP

FIG. 5B. Adenocarcinoma of the mammary gland in mouse of experimental group which died 17 months after flight. AFIP Acc. 820960 (×150), hematoxylin and eosin stain.

phism, and intraductal proliferation became more and more apparent. In older animals the alveolar pattern of the tumor was less apparent (Figs. 5B and 5C). The percentage rate in the colony as a whole at which mammary tumors developed locally and in the lung is indicated in Fig. 6. Using the chi-square test, no statistically significant difference in the experimental and control groups was found either in the incidence or in the rate of occurrence of mammary tumors in the colony.



AFIP

FIG. 6. In the upper two curves (A) are indicated the percentage incidence of primary lung tumors and in the lower two curves (B), the percentage incidence of mammary tumors.

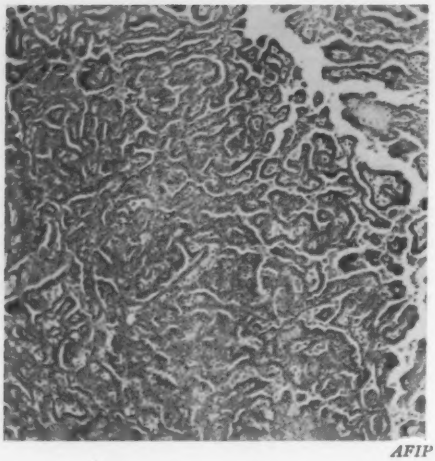
All of the *primary lung tumors* in both groups corresponded to a type described previously.[5] These tumors, the incidence of which is indicated in Table 3 and in Fig. 6, were almost always pearly white and were often situated close to the pleura (Fig. 7A).

AFIP

FIG. 5C. Metastatic mammary tumor in the lung of mouse (same mouse as in 5B). The centers of some of the tumor lobules are necrotic. AFIP Acc. 820960 (×100), hematoxylin and eosin stain.

AFIP

FIG. 7A. Primary alveolar-cell tumor of the lung in a mouse of the experimental series which died 3 weeks after exposure to the stratosphere. The multiplicity of the tumor nodules is to be noted. AFIP Acc. 778697 (×7.5), hematoxylin and eosin stain.

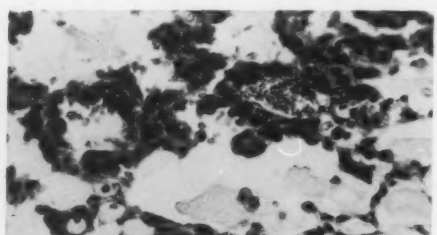


AFIP

FIG. 7B. Primary alveolar-cell tumor of the lung in a mouse that died 7 weeks after exposure to the stratosphere. This illustrates the papillary nature of the tumor. AFIP Acc. 871481 (95), hematoxylin and eosin stain.

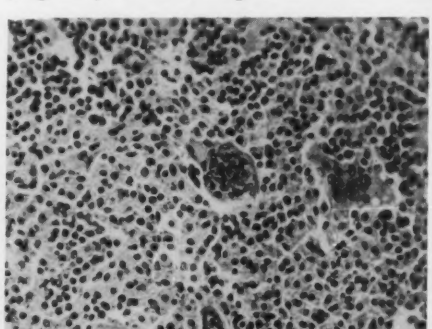
They appeared to be growing solely by expansion. Histologically they had a papillary structure with a delicate stromal core surmounted by cuboidal or columnar cells (Figs. 7B and 7C). Mitotic figures were rare. As far as we are aware, invasion of regional lymph nodes occurred in only one animal, an experimental which died 24 months after the flight (AFIP Acc. 847496). Statistical evaluation of the incidence of the lung tumors was rather difficult because the lungs were not serially sectioned. On the basis, however, of the grossly observable tumors, which were microscopically confirmed, the incidence was not considered significantly different in the two groups (Table 3 and Fig. 6).

None of the *other tumors* occurred in great enough numbers to be evaluated statistically. Tumors of reticular tissue were observed in both groups in almost equal number. In younger animals the reticular tumors were composed predominantly of lymphoblastic cell types and were characterized by pronounced splenomegaly, and in older groups the chief components were reticulum cells associated with varying numbers of multinucleated giant cells (Fig. 8A), as described by Dunn.[2] Renal tumors were also observed in both groups. Most of them seemed to have a multicentric origin and were bilateral. They usually arose from renal tubules and have either papillary adenomas or carcinomas (Fig. 8B). Harderian gland tumors[12] were



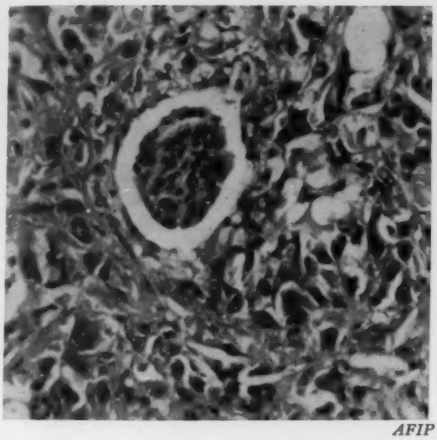
AFIP

FIG. 7C. Primary alveolar-cell tumor of the lung in a mouse that died 11 weeks after exposure to the stratosphere. This illustrates the origin of the tumor from alveolar lining cells. AFIP Acc. 871484 (×325), hematoxylin and eosin stain.



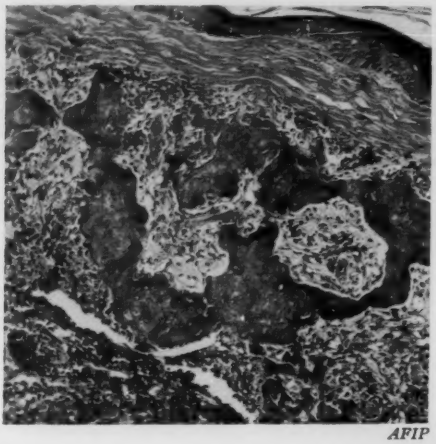
AFIP

FIG. 8A. Reticulum-cell sarcoma with multinucleated giant cells in a lymph node of an experimental animal which died 22 months after the flight. AFIP Acc. 820963 (×300), hematoxylin and eosin stain.



AFIP

FIG. 8B. Adenocarcinoma of the kidney of renal tubular origin in a mouse of the experimental series which survived the flight 18 weeks. AFIP Acc. 787183 (×350), hematoxylin and eosin stain.



AFIP

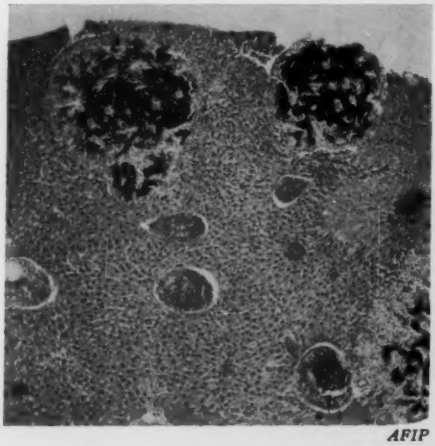
FIG. 8C. Primary osteogenic sarcoma of the tail of a control animal which died 23 months after the flight. Here is shown the primary tumor. AFIP Acc. 820970 (×150), hematoxylin and eosin stain.

found in both groups and with approximately equal frequency and time of life. They were usually bilateral. Various other tumors were also observed (Table 3).

A curious sidelight was the development of an osteogenic sarcoma in a control animal. The tumor originated in the tail under a tattoo mark used for identification purposes. This tumor was composed for the most part of rather well-differentiated marrow containing bone (Figs. 8C and 8D), and it metastasized to lungs, liver, kidney, and spleen.

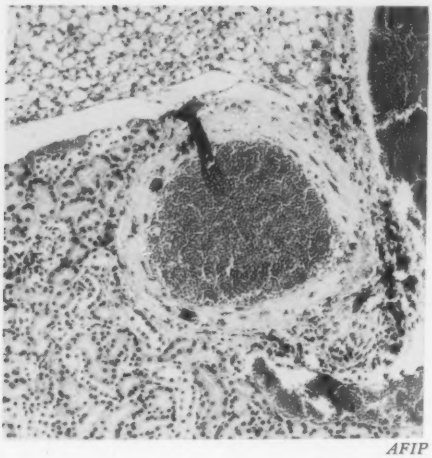
4. *Miscellaneous Visceral Lesions.* Several male animals in both groups had urinary retention in association with prolapse of the penis, which subsequently became necrotic. On post-mortem examination, hugely distended bladders in such animals were found filled with clear urine. The cause of this condition was not determined, but in one of the animals a sebaceous-cell adenoma had developed on the prepuce. Rectal prolapse was observed fairly often in young animals. In 1 experimental and 4 control animals the prolapse was associated with liver abscesses, from which *Corynebacterium* could usually be isolated. Liver abscesses were not observed in any other animals.

Observed with increasing regularity with advancing age in both groups were senile changes in the form of vascular degenerative lesions (Fig. 9A), great variation in size of the nuclei of liver cells (Fig. 9B), the development of nonspecific intranuclear inclusions in liver cells (Fig. 9C), secondary amyloidosis of the liver, kidneys, and heart (Figs. 9D, 9E, and 9F), mural thrombosis



AFIP

FIG. 8D. Metastic tumors in the liver (primary osteogenic sarcoma of the tail—see 8C). AFIP Acc. 820970 (×50), hematoxylin and eosin stain.



AFIP

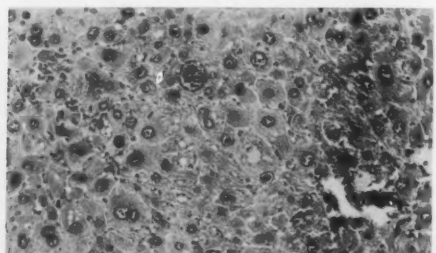
FIG. 9A. (9A to 9F, incl. show various lesions in older mice.) This shows fibrohyaline degenerative change in the wall of an artery in the renal pelvis; animal, an experimental, died 32 months after flight. AFIP Acc. 871486 (×160), hematoxylin and eosin stain.

in the left atrium of the heart (Fig. 10), and glomerular sclerosis with the formation of cysts in the kidney.

5. *Parasites.* Many of the animals were infested with nematodes and cestodes, tentatively identified as *Syphacia obvelata* and *Hymenolepis diminuta.* As judged by microscopic examination of sections of intestine, the degree of parasitism seemed to increase with advancing age and with the development of debilitating disease. Only in one animal were there lesions directly attributable to the parasites, and they consisted of oxyurid-containing granulomatous masses in the

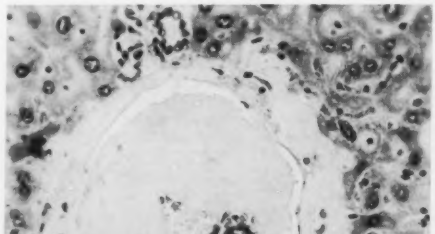
AFIP

FIG. 9C. Same as 9B with higher magnification. AFIP Acc. 871484 (×660), hematoxylin and eosin stain.



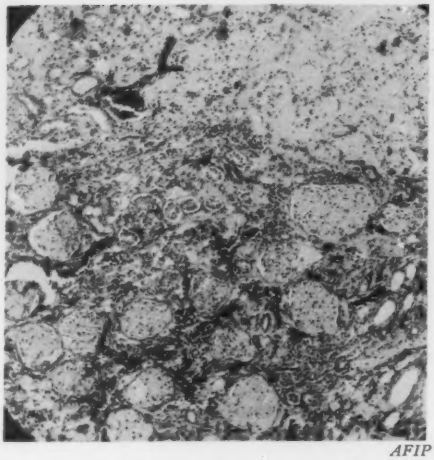
AFIP

FIG. 9B. Enlarged nuclei and cytoplasm and presumably non-specific intranuclear inclusions in parenchymal cells of the liver. Animal, an experimental, died 31 months after flight. AFIP Acc. 871484 (×165), hematoxylin and eosin stain.



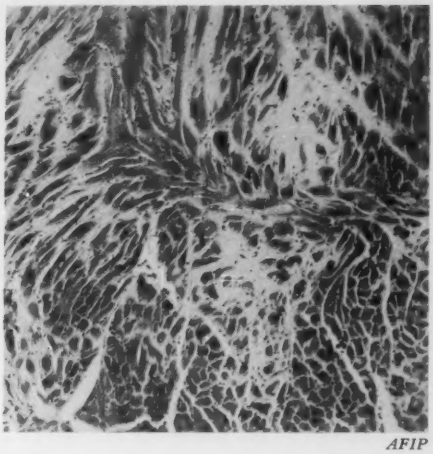
AFIP

FIG. 9D. (9D, E, and F show secondary amyloidosis in a control animal, two years after flight). Here it is shown in the liver. AFIP Acc. 820976 (×305), hematoxylin and eosin stain.



AFIP

FIG. 9E. Secondary amyloidosis in the kidney (See 9D). AFIP Acc. 820976 (×85), hematoxylin and eosin stain.



AFIP

FIG. 9F. Secondary amyloidosis in heart (See 9D). AFIP Acc. 820976 (×100), hematoxylin and eosin stain.

peritoneal cavity associated with peritonitis and intestinal obstruction. Helminthic infestation was observed about equally in the experimental and control animals. On the basis of the blood smears, *Hemobartonella* was apparently endemic in the colony, but clinical disease from its presence was not established unequivocally. Gross and microscopic examination of the experimental and control mice failed to reveal any ectoparasites.

6. *Brain.* Detailed examination of the brains of the 14 experimental animals referred to under *Recovery and Maintenance of the Mice* failed to reveal any significant lesions.

7. *Reproduction.* Since study of the gonads and of reproductive activity was not the primary objective in these studies, statistically valid observations on these phases of the problem were not carried out. Active spermatogenesis and oogenesis was observed in all the animals, with the exception of one aged control in which advanced testicular atrophy was observed. Spermatogenesis and oogenesis seemed as active in all mice long past the average breeding age as in young healthy animals.

The results of the breeding experiments are indicated in Table 4. Two series of matings were carried out. The lower fertility in the experimental group may be attributable to any one or more factors instrumental in conception, development, and parturition. Our observations in these realms were too few to allow analysis.

8. *Heavy Primary Thindown Exposure.* In a foregoing section of the text it was indicated that, using a rigid criterion in esti-

AFIP

FIG. 10. Heart, showing mural thrombus in left atrium and clotted blood in the right atrium, in an experimental animal surviving 35 months after the flight. AFIP Acc. 871488 (×8).

TABLE 4

RESULTS OF STUDIES ON REPRODUCTION

Reproduction Factors	Series 1		Series 2	
	Experimental	Control	Experimental	Control
Percentage fertility	82.8	86.6	45.7	73.3
Average number in litter	7.7	8.0	8.8	7.8
Total male:female ratio	108:72	84:50	77:48	47:31
Percentage weaned	86.5	100.0	88.6	90.6

mating the probability of hits by heavy nuclei, the mice did not receive any appreciable exposure to the calcium-iron group of heavy nuclei during the flight. The absence of statistically significant biological damage as a result of the low-altitude exposure must not be interpreted to mean that this group of very densely ionizing particles is incapable of producing biological damage. It has been estimated that the center of the core of a heavy nucleus thindown receives a radiation dosage equivalent to more than 10,000 roentgen units.[7-11] The final answer to the fundamental question of biological vulnerability to cosmic particles must await the recovery and study of animals from prolonged flights near or above the top of the atmosphere, either from giant balloons or from recoverable satellites.

Recent studies[16] indicate that the heavy primary thindown intensity varies considerably over the 11-year solar sunspot cycle. Emulsions flown to 112,000 ft. in the summer of 1958, at a time of sunspot maximum, revealed a three-fold reduction in the abundance of thindown tracks as compared with measurements at the same elevation at a period when the sunspot activity was near minimum. This observation is of particular significance in planning investigations of the biological effects of primary cosmic radiation at high altitudes. It is noteworthy in this respect that the hair of black mice became gray following exposure in the stratosphere when the balloon was launched during a period of minimal sunspot activity and maximal intensity of low-energy, densely ionizing cosmic ray particles.[1] The next optimal period for bio-cosmic ray studies can be expected in 1964-65.

SUMMARY AND CONCLUSIONS

1. A study of possible biological effects of 24-hour exposure to primary cosmic radiation was carried out in 85 mice which were kept for approximately 24 hours in the stratosphere in a capsule suspended from a giant polyethylene balloon. The maximal altitude reached was approximately 109,000 ft. The animals were at 80,000 ft. altitude or above for approximately 23 hours. Analysis of the balloon altitude trajectory indicates that the mice received collectively a total of 7,350 thindown hits by heavy primaries of charge $Z \geq 6$, of which 59 hits were by members of the calcium-iron group.

2. Control mice on the ground were subjected to the same rigors as the experimental mice. Both the experimental and the control animals were then allowed to live out their life span.

3. There was no definite evidence of a difference in the average longevity of the two groups. The average monthly death rate was statistically higher in the experimental group, but spontaneous disease early in the experiment was regarded as the primary cause for the statistical difference. Correction of the longevity curve for the spontaneous disease outbreak yielded death-rate curves which were highly similar in the two groups.

4. In studies designed to detect differences in fertility rate, the results of the first mating were approximately the same in the

two groups of animals. Since our primary objective was to study longevity, serial sacrifices to determine the incidence of pregnancy, the number of fetuses resorbed, and so on, could not be made. Conclusions as to the meaning of the different rates of fertility must, therefore, remain open. Examination of the gonads microscopically revealed no alterations. Active spermatogenesis and oogenesis were encountered even in animals which had lived long past their normal breeding age.

5. Murine endemic pneumonia occurred with greater frequency in the experimental animals than in the controls, but this observation was considered statistical invalid because of our inability to exclude spread of the organism during the flight.

6. The incidence of mammary adenocarcinoma, lung tumors, and other neoplasms was approximately the same in the two groups.

7. Although under the conditions of the balloon flight one would have expected 1.3 hits per brain by thindowns of light or medium weight primary cosmic particles, no significant brain changes were found. Practically speaking, the brains were not exposed to heavy primaries of $Z > 20$.

8. Taking into consideration the minor differences exhibited by the experimental and control animals in longevity, incidence or neoplasms, and in reproductivity and aging, there was no definite evidence that a day's exposure to light and medium weight primary cosmic particles in the stratosphere had any adverse long-term effect.

References

[1] Chase, H., and Post, J.: Damage and repair in mammalian tissue exposed to cosmic ray heavy nuclei. J. Aviation Med. 27: 533, 1956.

[2] Dunn, T.: Normal and pathological anatomy of the reticular tissue in laboratory mice. J. Nat. Cancer Inst. 14: 1281, 1954.

[3] Experimental material flown on Aero Medical Field Laboratory Balloon Flights 46 through 71, Steinmetz, HADC TN 36-2 ADNO 113031.

[4] Foulds, L.: The histologic analysis of mammary tumors in mice. J. Nat. Cancer Inst. 17: 701, 1956.

[5] Grady, H. G., and Stewart, H. L.: Histogenesis of induced pulmonary tumors in strain A mice. Am. J. Path. 16: 417, 1940.

[6] Innes, J. R. M., McAdams, A. J., Jr., and Yevich, P.: Pulmonary disease in rats. Am. J. Path. 32: 141, 1956.

[7] Simons, D. G.: Observations in high-altitude, sealed-cabin balloon flight. Air Univ. Quart. Rev. 10: 65, 1958.

[8] Simons, D. G.: Space Medicine—The Human Body in Space. Monograph No. 6, Franklin Institute of Pennsylvania, 1958, p. 161.

[9] Simons, D. G.: Biologic Hazards of Space Radiation. *In* Glaser: Biophysics, ed. 3, 1959.

[10] Simons, D. G., and Parks, D. P.: Improved techniques for exposing animals to primary cosmic ray particles. J. Aviation Med. 27: 317, 1956.

[11] Singer, S. F.: Cosmic ray effects on matter at high altitudes. J. Aviation Med. 27: 111, 1956.

[12] Snell, G. D.: The Biology of the Laboratory Mouse. New York, Dover Publ., Inc., 1956, p. 109.

[13] The Committee on Standardized Nomenclature for Inbred Strains of Mice. Standardized nomenclature for inbred strains of mice. Cancer Res. 12: 602, 1952.

[14] Summary of Project 7851 Cosmic Ray Studies 1955-1958, AFMDC Tech. Rep.

[15] Yagoda, H.: Frequency of thindown hits by heavy primary nuclei in emulsion and tissue. J. Aviation Med. 27: 522, 1956.

[16] Yagoda, H.: Variation of the heavy primary flux with the solar cycle. Bull. Am. Phys. Soc., Series II 4: 140, 1959.

Impact of an Influenza Epidemic on a Civilian Community: Effects Upon Selected Industries and Hospitals*

By

I. M. Rosenstock, David Burgoon, John D. Colby, and Victoria M. Trasko†

IN ANTICIPATION of a probable outbreak of Asian influenza in the fall of 1957, an unusual opportunity was provided to study the effects of community action to reduce the impact of predicted epidemic. Accordingly, the Public Health Service undertook such a study in September, 1957.

The present report describes the study of the impact of the threat of epidemic and its occurrence on the operations of selected industries and hospitals. Separate reports will describe the epidemiology of influenza, as well as the impact on families and special population groups, and the impact on selected community health and welfare organizations.

In the present study a sample of hospitals and industries (including public services) in five cities of two states was surveyed to determine the response among these organizations to the the threat and later occurrence of an epidemic. Personnel of the Public Health Service's Occupational Health Program and the Division of Hospital and Medical Facilities assumed responsibility for (1) developing specific tools for collecting needed data, and (2) supervising data collection.

Initial visits to plants and hospitals took place during the first three weeks of October, 1957. Follow-up visits or inquiries were concluded by December 31, 1957.

Two kinds of tools were used. Personal interviews were conducted with representatives of each surveyed industry and hospital to collect data on pre-epidemic expectations and preparations. For example: What was anticipated? What controls and plans, if any, were being made? In addition, objective questionnaires were left with each organization for recording later data on the nature and extent of absenteeism by cause, on production levels, and other information relevant to industries and hospitals on bed distributions, bed occupancy, size and composition of staff, and effects of epidemic upon level of services, personnel absenteeism rates, and demand for services.

There was particular interest in the question: To what extent would given levels of absenteeism during epidemic reduce the productive ability or level of services of the organizations?

Findings from Industry

Limitations of Data. Two major limitations in the collected data must be noted. The first concerns the timing of the study, which was designed to obtain data on expectations and preparations prior to high incidence of respiratory disease. Actually, the peak epidemic periods developed to coincide roughly with the dates of initial interviews. As a consequence, respondents' answers to questions about their pre-epidemic expectations had to be retrospective. And intervening events would tend to bias memory.

The second limitation evolved from the difficulty in obtaining objective and comparable measures of industrial production. Companies are understandably reluctant to disclose production figures, even on the basis

* This study was made possible in part by financial support of the U. S. Army Chemical Corps.

† Dr. I. M. Rosenstock is Chief, Behavioral Studies Section.

Mr. David Burgoon is Assistant Chief, Equipment and Planning Branch of the Division of Hospital and Medical Facilities.

Mr. John D. Colby is currently an Education Specialist in the Division of Radiological Health, but at the time of the study was Public Health Advisor in the Occupational Health Program.

Miss Victoria M. Trasko is Program Advisor in the Occupational Health Program.

TABLE 1

CHARACTERISTICS OF STUDY ORGANIZATIONS

Type of Organization	Number in Sample	Number of Employees
Public Utility	5	2,501
Essential Community Serv. (police, fire)	5	733
Essential Product (dairy, etc.)	5	1,095
General Manufacturing	17	36,392
Total	32	40,721

of an index. It was possible to obtain differential production estimates for the epidemic period and for comparable non-epidemic periods. However, such data reflect a ratio based largely on the recall of company officials interviewed.

Characteristics of the Organizations Studied. Table 1 shows the characteristics of the industries included in this study.

Expectations for Epidemic. Prior concern was demonstrated in only a few of the industries studied about the potential hampering effects of an epidemic of Asian influenza upon their operations.

Where concern was expressed, it related primarily to delays in delivery of vaccine, or inability to get it. The industries studied generally anticipated a rise in absenteeism, but did not believe it would be extensive enough to affect production. There were expressions that production problems could be handled if absenteeism did not exceed 20 percent.

Preparations for Epidemic. Twenty-five of the 32 plants studied offered vaccination to employees at varying times through the middle of December, 1957. However, with the few exceptions discussed below, no preparations other than vaccination were made by the plants. This seems to support the hypothesis that the vaccine was believed to be highly effective and this belief underlay the general lack of concern over the impact of epidemic. Expressions of confidence in vaccinations as protection against epidemic were frequent. Industries demonstrated marked confidence in their ability to meet emergencies that might arise.

Two plants made preparations in addition to vaccination: one distributed notices to workers advising them to stay home if they developed fever or other symptoms of respiratory infection; and one increased the janitorial staff to keep down the spread of infection.

Impact of Epidemic and Steps Taken to Reduce It. In general, the impact of the epidemic on plants was minimal. Absenteeism never became a serious problem and production and services did not fall off.

In twenty plants in which comparable data were obtained, the periods of maximum absenteeism occurred during the last two weeks of October and the first two weeks of November. During that period, the average number of employees absent from work on a given day ranged from one-half percent to 13 percent. The median absentee rate was 5.5 percent. Naturally, the average percentage of employees absent for a longer period of time was much less. In three cities where data were available, the average proportion of workers off one or more days during the two-week period of highest incidence ranged from two to ten percent. Where data were available, 68 to 90 percent of sickness absences during October and November could be attributed to respiratory disease.

The average number of days off because of sickness during October and November was between one and two days. In three companies in which sickness absences could be broken down by respiratory disease, affected workers lost on the average of three to four work days.

Over the epidemic period, normal production and services generally were not affected. Temporary pressures in some plants occurred; but the companies were well able to handle these through such expedients as interchanging workers among shifts or machines, increasing overtime authorizations, and temporarily hiring "on call" workers or those recently laid off. *It is clear that if the*

average daily absenteeism rate does not exceed 15 percent of employees, and the duration of absences is not more than four days, industries of the kinds surveyed are able to meet production schedules.

Findings from Hospitals

Characteristics of the Hospitals Studied. Seventeen general hospitals were surveyed with a total bed complement of 4,228. The range in number of beds was 45 through 516.

Expectations for Epidemic. Most of the hospital administrators felt little concern about the ability of their hospitals to meet any demands arising from this epidemic. They felt that there would be little change from their present operations, because few people would require hospitalization if admissions were restricted to complicated cases. Only 41 percent (7) of the 17 hospital administrators had even discussed the problem with their medical staffs and only 23 percent (4) prepared a written plan of action.

Preparations for Epidemic. All hospitals obtained Asian influenza vaccine and inoculated their hospital personnel. Some hospitals gave 0.1 cc intracutaneous injections, others gave 1 cc subcutaneously. The dosage used for vaccination seemed to be based more on the availability of vaccine rather than on opinions of the extent of protection provided.

An admission policy to be enforced during the time of the epidemic was developed by 29 percent (5) of the hospitals. Many of the hospital administrators thought that an admission policy would probably be necessary but were not taking steps to establish one. Written disaster plans were completed in 53 percent (10) of the hospitals; however, only 23 percent (4) had ever held a practice run.

There were only two instances of a joint agreement among hospitals. One was established to insure an equal distribution of patients; in the other, a joint agreement was reached regarding hospital visitors.

It is interesting to note that the data obtained here on preparations parallels closely those obtained in the study of impact upon other community health and welfare organizations which will be reported separately. In the other study it was noted that preparations for epidemic consisted almost exclusively of vaccination programs.

Impact of Epidemic and Steps Taken to Reduce It. Ten of the 17 hospitals reported no unusual increase in absenteeism during the epidemic period. The remaining seven experienced greater absenteeism than was normal. Four of these were understaffed in the nursing department; the remaining three experienced no staffing problems. With one exception, hospitals operated as usual. In the one exception, the hospital invoked policies established earlier for use during epidemic which followed the recommendations of the American Hospital Association in establishing isolation techniques, restricting admission of respiratory infections to complicated cases, locating all such cases in one part of the hospital, and restricting visitors.

Conclusions

The influenza outbreaks occurring during the fall of 1957 did not materially affect the level of services provided or the production of sampled industries, public services, and hospitals. This was due to a combination of relatively low absentee rates and the mildness and short duration of the illness.

Employee vaccination programs were developed by 25 of the 32 industries as well as all 17 hospitals included in the survey. However, planning and preparation beyond vaccination were minimal. It is therefore conjectural how industry would have fared had absenteeism reached higher levels, had the disease been severe enough to disable workers for longer periods, or had labor pools not been available for temporary employment.

It seems reasonable that the lack of prior coordinated planning by hospitals in the communities studies reduced their capability of handling the impact of a serious epidemic if one had occurred. It is suggested that more effective coordinated hospital planning would be needed to control serious community health emergencies in the future.

The Alcoholic Patient—His Needs as Met by Alcoholics Anonymous and the Caseworker

By

FIRST LIEUTENANT PETER T. VAN SUETENDAEL, MSC, *U. S. Army*†

IT MAY appear at the first comparison that in language and ideas the Alcoholics Anonymous (AA) program and case work are dissimilar. Upon closer examination this may be found to be an erroneous assumption. When we compare the two, as I intend to do in this paper, we may find that actually there are many areas in which there are many similarities between the two fields of endeavor.

In order properly to compare social case work and AA we need to first consider the AA program and how it operates. The AA program began in 1935 when an alcoholic who had achieved sobriety helped a friend to achieve the same goal. It then occurred to these two that they might be able to help others who suffered from the same problem and consequently the AA program was begun.[1]

Today there are 7,000 AA groups and the total membership is 250,000.[2] Each AA group is free to conduct its affairs in any way the membership wishes, but each group must attempt to adhere to the "12 Traditions" of AA which are given below:

1. Our common welfare should come first, personal recovery depends upon AA unity.
2. For our group purpose there is but one ultimate authority—a loving God as He may express Himself in our group conscience. Our leaders are but trusted servants; they do not govern.
3. The only requirement for AA membership is a desire to stop drinking.
4. Each group should be autonomous except in matters affecting other groups or AA as a whole.
5. Each group has but one primary purpose—to carry its message to the alcoholic who still suffers.
6. An AA group ought never endorse, finance or lend the AA name to any related facility or outside enterprise lest problems of money, property and prestige divert us from our primary purpose.
7. Every AA group ought to be fully self-supporting, declining outside contributions.
8. Alcoholics Anonymous should remain forever nonprofessional, but our service centers may employ special workers.
9. AA, as such, ought never be organized; but we may create service boards or committees directly responsible to those they serve.
10. Alcoholics Anonymous has no opinion on outside issues; hence the AA name ought never be drawn into public controversy.
11. Our public relations policy is based on attraction rather than promotion; we need always maintain personal anonymity at the level of press, radio and films.
12. Anonymity is the spiritual foundation of our traditions, ever reminding us to place principles before personalities[3]

Together with these traditions each member of the group is attempting to take one of the "12 Suggested Steps" of AA which are given below:

1. We admitted we were powerless over alcohol —that our lives had become unmanageable.
2. Came to believe that a Power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God *as we understood Him.*
4. Made a searching and fearless moral inventory of ourselves.
5. Admitted to God, to ourselves and to another human being the exact nature of our wrongs.
6. Were entirely ready to have God remove all these defects of character.
7. Humbly asked Him to remove our shortcomings.
8. Made a list of all persons we had harmed, and became willing to make amends to them all.
9. Made direct amends to such people wherever

† U. S. Army Hospital, U. S. Disciplinary Barracks, Lompoc, California. Lt. Van Suetendael has been working with this problem at this installation for the past two years.

Present Address: U. S. Army Hospital, Fort Huachuca, Arizona.

possible, except when to do so would injure them or others.

10. Continued to take personal inventory and when we were wrong, promptly admitted it.
11. Sought through prayer and meditation to improve our conscious contact with God *as we understood Him,* praying only for knowledge of His will for us and the power to carry that out.
12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics and to practice these principles in all our affairs.[4]

The general procedure for a new member is that he is given a sponsor who is a member of AA and can answer questions about the program and act as a friend. The new member may choose his sponsor if he wishes and if he expresses no preference he is assigned a sponsor. His sponsor will generally bring a new member to his first few meetings.

AA meetings are of two types. There is the open meeting, in which various members talk to the group telling of their experiences with alcohol and how they found AA. Any interested person is allowed to attend these open meetings. Each group also has closed meetings in which attendance is limited to members only. These meetings are generally some form of discussion group in which each member tells of his own particular problem in attempting to accept and carry out the "12 Steps." This then is the framework in which the AA groups operate.

We all have clients who have some problems with alcohol. Perhaps their primary problem is not alcohol, but certainly in a large percentage of cases the problem is aggravated or complicated by the use of alcohol. In an attempt to offer the client the best services possible and those which are the ones most likely to help with his particular problem, we should make an attempt both to understand something about what AA can offer a client and also some of the things that AA is able to do. We must bear in mind that it has been said that AA is the most effective treatment for an alcoholic.[5]

Let us now look at some of the reasons for the success of the AA group as Dr. Collier stated in the pamphlet "Alcoholism the Illness." "Any therapeutic or philosophic procedure which can prove a recovery rate of 50 to 60 percent must merit our consideration."[6] Even though AA considers an alcoholic who has occasional "slips" as recovered, this recovery rate still is probably higher than the success rate in casework.

In order to evaluate the methods and treatment used by AA we first need to review in our minds the kind of person we have seen the alcoholic to be. He generally is a person with unmet oral dependency needs. The alcohol symbolically represents the "mother's milk" and oral love which the alcoholic craves.[7] Also we generally see the alcoholic as a person who has been unable to achieve any lasting success either in his employment or in social acceptance. Thus, we find a person with a very poor self image.

Let us now look at what AA offers these people, how these needs are met through the AA program and if they are met through casework treatment. I have seen both these programs in effect, having been the advisor for an AA group and also having treated alcoholics in a casework relationship.

Each member when he comes into AA is not only welcomed and accepted into the group but, as has been pointed out, has an individual sponsor, a man to whom he can be free to talk and to go over any problems he may have. This, of course, helps to fulfill a need for acceptance and also encourages dependency upon the group. The casework relationship can certainly offer the individual the one to one relationship that the AA member would find with his sponsor. However, there is a second factor which is prominent in the AA program and this is the factor of religion. AA, though not a religious program, does offer a Power greater than anything or anyone else. In the casework relationship, on the other hand, we rarely see religion stressed or even discussed in much detail.

We see also that both group and individual relationships exist in AA. The confidentiality, ability, and willingness of the sponsor to help the alcoholic is a little bit more

standardized and spelled out in AA than it is in the casework relationship. In the casework relationship the client more or less has to learn these things for himself and work his feelings through with the worker. In the AA group this opportunity to work this through is not really present because it is already definitely explained to the alcoholics in their literature.

The alcoholic coming into AA is immediately confronted with proof of the effectiveness of the group by seeing those members who have achieved sobriety. A point is made in AA to show anyone who comes in that there is always somebody who has a problem or who is, or was, worse off than he. This, it is hoped, will give the alcoholic immediate proof of the fact that AA can help him. In the casework relationship the proof of the fact that the worker can help the client is established in the beginning of the relationship with the client. Again, in casework, the client is given an opportunity to work through his feelings regarding this.

Further, the AA group offers the alcoholic strengthened status, a need which he probably did not have prior to entering the group. This status is obtained, of course, by staying sober. In addition the AA member gains further prestige in the group by helping others as he progresses in the group. This indicates to him that he has been able to achieve sobriety and it also aids in satisfying his need for status. In the casework relationship it is true that although support by the worker is equivalent to the status in the AA group, it can also be said that the caseworker's support is perhaps as important, if not more important, than the status in the group since it would be hoped that the client would have a stronger relationship with the caseworker than he would with any AA member or with the group as a whole. Therefore, this praise from the worker might be taken to mean more to the client because of the professional nature of the relationship. The caseworker is better able to make use of this relationship as a part of the treatment process.

When the new member of AA is given the "12 Steps of AA," these in effect constitute an outline of treatment and a way in which to reach and maintain sobriety. Of course this is a considerable degree of structure. It also is almost a guarantee of how to achieve the goal of sobriety. However, AA does not claim that its program is 100 percent effective. It does claim that its program is effective and successful if the steps are followed.[8] The first step, admitting that one is powerless over alcohol, would seem to foster a dependency relationship at the beginning of the AA treatment program, however, this is not a disadvantage because the AA program is set up to meet dependency needs. The "12 Steps" also give the new member a structure for therapy and some assurance of the things to come, all of which gives him some security. There seems to be no equivalent to this in a casework relationship. The structure or treatment plan is present in casework treatment, but generally is not shared with the client, other than by using some vague phrases such as "It helps to talk about problems" or perhaps "we can help by talking about this." Obviously there is little opportunity for the client to meet others who have successfully completed the therapeutic relationship with the worker. The lack of structure in a casework treatment relationship can be a valuable asset to this relationship since the client is forced to make his own structure, whereas, in the AA program it is given to him. The questions that can be raised are: Is it always advisable to allow the client to grope for his own structure? Would it perhaps be wiser to give him some of this structure realizing that this would limit the goals of therapy to the extent that the client might not be able to gain as much growth or self understanding, yet at the same time would be able to derive more from the therapy in a shorter period of time?

In AA the primary method of treatment, or at least the way treatment is begun, is for those in the group to make a willful effort to control their impulses. In AA after this willful effort is successfully made by the member he then finds other outlets for these

impulses or needs. For example, the dependency needs which had been partially fulfilled by the alcohol now are fulfilled by the group. The alcoholic's need for status or for a feeling of self worth which he formerly attempted to fulfill by alcohol intake now is fulfilled by his prestige in the group. In casework, the client is asked not to give up or to deny any of his impulses but is rather encouraged to talk about them. In other words, the worker does not originate the idea that the client must give up certain habits or actions or deny certain impulses. Rather, the goal in casework is to attempt to have the client realize a desire to give up or change these impulses.[9] Further, we may say that this method of treatment is perhaps longer lasting than that used by AA because it encourages the client to be independent, whereas AA tends to make its members dependent upon the AA program. This is not to imply that the AA program admonishes all its members not to drink. This is not the case. However, they do stress that in order to participate in the AA program a member must be sober. A like situation in casework does not exist. A client can still be coming to a caseworker to talk about an alcoholic problem and, provided he is not completely under the influence of alcohol during the therapeutic hour, he could drink as much as he wanted after this and would not be rejected from treatment. This in a way again puts more of the responsibility on the client.

It would be beneficial at this point to look at the different areas in the AA program where we find casework principles, although we have already touched on some of these. The first principle is that both casework and AA start where the client is.[10] In the AA program the same principle is applied when it is considered that each member who is coming into AA is coming in because he has admitted he is powerless over alcohol and that this is a power that is destructive to his life. In the AA program no attempt is made to start work with a new member at anything other than this first step in AA's 12 Steps. The AA program also adheres to the casework principle of moving at the client's pace. That is, the program does not encourage a man to go faster through the 12 steps than he feels he is able to go and still absorb the full meaning of each step and feel the need for it. AA realizes that these steps involve attitude changes and these cannot be accomplished overnight. For instance, one of the steps requires a "thorough moral inventory." This must be discussed with another member of the AA group and ample time is allowed to carry through these processes.

One very important principle in the AA program is that of self-direction. This, too is of course used in casework.[11] The theory of the AA program is not that those who are members cannot drink but that by belonging to AA they have the choice as to whether or not they wish to drink and have had the opportunity to clearly see what happens when they do drink. This, I feel, is indeed self-direction.

Also AA is careful not to be derogatory toward any member. They stress that although each member must talk about those things which he has done in the past he must not then consider himself condemned because of this, but rather see this as a way to help prevent these things in the future. It would appear that all these principles used in AA are very familiar to us in casework.

Let us now consider the differences in the results obtained through treatment in AA, as I feel AA can be said to give treatment, and treatment through a casework relationship. I have previously mentioned that the AA program first suppresses desires and then stresses certain needs such as dependency and provides fulfillment for those needs. The casework relationship on the other hand, attempts more to have the client look at these needs and have him find ways of meeting them rather than to meet them solely through the treatment relationship. In the AA program needs such as dependency or the need for status, although sometimes verbalized, are really not seen as needs consciously by most of the members. In the

casework relationship by the client being helped to see his own needs and his own reasons for drinking, he is enabled to move out and function in society. Of course, this does not hold with the AA program. That is, although the members can function very well in society, they must have the AA program at all times. Of course, they may leave the program and stay sober but they will then be plagued by many emotional problems. Thus we can see that although the AA program is effective it must be continuing, whereas for the casework relationship there is not the need for continual guidance of the client.

SUMMARY

In this paper I have attempted to demonstrate that frequently the AA program and the caseworker dealing with the alcoholic are confronted by people with like needs. Such feelings as dependency, need for status, and the need for structure are dealt with to some extent by both AA and casework, but the methods of the two vary as do the goals and results obtained. Whether casework or AA has the better method is not the question. However, I feel that the AA program is certainly one which has features in it that all caseworkers should be aware of and should be able to incorporate into their own work with the alcoholic client.

REFERENCES

[1] *Alcoholics Anonymous,* Works Publishing, Inc., New York, 1951. pp. 1-25.
[2] Bill, W.: *Alcoholism—The Illness,* Alcoholics Anonymous Publishing, Inc., New York, p. 5.
[3] Ibid., (Inside back cover).
[4] Ibid., (Inside front cover).
[5] Royce, James E.: *Personality and Mental Health,* The Bruce Publishing Co., Milwaukee, 1955 p. 200.
[6] Bill, W.: Op. cit.
[7] Menninger, Karl A.: *Man Against Himself,* Harcourt, Bruce and Co., New York, 1938, p. 181.
[8] *Alcoholics Anonymous,* op. cit. p. 70.
[9] Hamilton, Gordon: *Theory and Practice of Social Case Work,* Columbia University Press, New York, 1951, p. 239.
[10] Ibid., p. 197.
[11] Ibid., p. 6.

YOUTH FITNESS

From the beginning, the emphasis of the President's Council on Youth Fitness and of the Citizens Advisory Committee has been on *total* fitness—on improving the physical, mental and moral fitness of our young people. I believe this emphasis is extremely well placed.

In this age of science, there is increasing awareness that the fullest educational development of our youth is basic to the growth of our economy and to our national defense. Hopefully, this will lead to a better understanding of the importance of excellence in our educational system.

As we move forward in making the necessary improvements in our educational system, it seems to me that we must maintain proper stress on the other important aspects of total fitness. Equally important to our national productivity and defense are programs looking to the improved health and vigor of youth, and programs to develop fuller understanding of our free institutions.

Providing the necessary motivations and expanded opportunities for youth fitness requires nothing less than the determined efforts of all our citizens. The Council's plan calls for successive issues of *Fitness in Action* to highlight constructive measures in behalf of youth fitness developed by the schools, by the various youth-serving agencies and organizations, by the churches, by industry, labor, the communications media and by citizens groups of all kinds. It is my hope that these constructive examples will be widely emulated throughout the communities of the land.

Secretary of Defense
NEIL M. MCELROY

The Professional Medical Training Program, U. S. Army

By

COLONEL DAN CROZIER, MC, *U. S. Army**
MAJOR E. M. THRONE, MC, *U. S. Army***

APPROXIMATELY one-third of the Members of the Regular Army Medical Corps are, at the present time, participating in the formal Professional Medical Training Program. This program is far-reaching in its scope and provides the main recruiting incentive for the Regular Army. During the past decade this program has attained the position where it is considered comparable to the training programs conducted by our oldest and best known university medical centers. The number of spaces for interns, residents and fellows in the program has increased steadily in the past few years, but still the number of applicants far exceeds the spaces available.

The training of Medical Corps officers is conducted primarily in Army medical facilities, but under certain circumstances facilities of other government agencies or civilian institutions may be used. This article will deal with the training of Army Medical Corps officers only. It will not include the senior medical student program, the clinical clerkship, or the training of medical officers of the Army Reserve not on extended active duty.

The purpose of the Army Medical Training Program is the continuing improvement of the Army Medical Service. Since this *is* a continuing process, the majority of these programs are available only to members of the Regular Army or to Reserve officers serving in an indefinite category. A number of these programs, however, are available to medical officers of other components of the Army, members of other uniformed services, and in a few instances to civilian physicians. In addition, medical officers of friendly foreign nations may participate in some of these programs.

Except for participants in the Army internship program or individuals who took part in one of the Army programs for medical students, physicians just entering on active duty generally observe the Army training program for the first time at the Army Medical Service School, Fort Sam Houston, Texas. This large training facility is an element of Brooke Army Medical Center and conducts a number of courses for Medical Corps officers. Courses for other corps of the Army Medical Service are also conducted and officers of more than one corps may attend the same course.

Medical officers just entering on active duty, whether for two years under the Universal Military Service and Training Act, to begin residency training, or under other circumstances, generally attend the Orientation Course (8-A-C1A). This is a 5½ weeks course designed to give the new officer a general orientation in the military aspects of the Army Medical Service. Army interns attend this course prior to entering the residency training program. This course may, when conditions necessitate, be shortened, and in unusual situations, attendance may be waived.

After completion of residency training or sometime within the first 10 or 12 years of active duty, generally at the time of a change of duty station, most regular Army Medical Corps officers and career reservists attend the 8-A-C4 course, or the Army Medical Service Officers Advanced Course. This is a 22 weeks course designed to provide the medical officer with intensive training in military medical subjects. This course, or equivalent constructive credit, is a prerequisite for attendance at the higher service schools.

* Chief Medical Consultant, Professional Division, Office of The Surgeon General, United States Army.

** Formerly Chief, Professional Training Section, Officer Branch, Personnel and Training Division, Office of The Surgeon General, United States Army. Now Fellow in Neuropathology, Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D.C.

Other courses conducted at this facility which Medical Corps officers may attend include the 8-A-3012 course, a 9-months course in hospital administration; the 8-A-F8 course, a 2-weeks refresher course in command and staff procedure; and the 8-A-F11 course, a 6-weeks orientation course in preventive medicine. These courses deal primarily with military medical subjects and are an integral part of the Army Medical Training Program. The 8-A-C4 course and 8-A-3012 course may be taken as correspondence courses through Brooke Army Medical Center.

Training of Medical Corps officers conducted elsewhere than at the Army Medical Service School is divided into 5 main categories:

1. Intern training program.
2. Residency training program.
3. Fellowship training program.
4. Postgraduate courses.
5. On-the-job training program.

In addition special training programs are conducted at Army facilities or at civilian institutions as required.

Intern Training Program

Intern training programs are conducted at 10 Army hospitals (Table I). These programs are all approved by the Council on Medical Education and Hospitals of the American Medical Association, and appointments are made through the National Intern Matching Program, Incorporated. The program consists of a 12-months rotating service with training in medicine, surgery, obstetrics and gynecology, and pediatrics, with emphasis being placed on practical experience in the fundamentals of medical practice. Opportunity for personal participation in the management of a wide variety of cases is provided. The intern may choose an elective of two months on a service on which he would not otherwise serve; such as pathology, radiology, dermatology, psychiatry, etc. The internship does not incur obligatory service but does not count toward fulfillment of the officer's obligation under the Universal Military Training and Service Act. Participants in this program are commissioned as 1st Lieutenants in the Medical Corps Reserve and are promoted to Captain on the completion of their internship, if they remain on active duty or retain their commission in the Reserve Forces.

Residency Training Program

The largest of the professional programs is the residency training program. This program, started in 1947, has provided formal training, as required by the various specialty boards, to approximately 2,100 medical offi-

Table I

Army Intern Training Program

Name	Location	Spaces
Brooke Army Hospital	Fort Sam Houston, Texas	31
Fitzsimons Army Hospital	Denver, Colorado	24
Letterman Army Hospital	San Francisco, California	24
Madigan Army Hospital	Tacoma, Washington	24
Martin Army Hospital	Fort Benning, Georgia	16
Tripler U. S. Army Hospital	Honolulu, Hawaii	36
Walter Reed Army Hospital	Washington, D. C.	32
William Beaumont Army Hospital	El Paso, Texas	29
Womack Army Hospital	Fort Bragg, North Carolina	12
Valley Forge Army Hospital	Phoenixville, Pennsylvania	10
	Total Spaces	238*

* For FY 60, the U. S. Air Force is allotted 56 intern training spaces in Army hospitals.

cers. Of this number, approximately 300 have been Air Force personnel. On 1 September 1958, 501 Army and 47 Air Force physicians were participating in this program in Army hospitals. In addition, 103 Army Medical Corps officers on active duty were in residency training in civilian hospitals. As the Army medical training program has expanded the use of civilian training facilities has decreased. Present plans call for further curtailment of this program with discontinuation within the next few years. The residency training program is outlined in Table II.

Army regulations provide for the inclusion of members of the Medical Corps Reserve in this program as well as Regular Army Medical Corps officers. It has been the policy of The Surgeon General, however, to render appointments only to those officers who have applied for and have been found to be eligible for a Regular Army commission. The only exception to this policy has been in the general practice residency at Ireland Army Hospital, Fort Knox, Kentucky. Recent action of the Professional Education and Training Committee of the Office of the Surgeon General established a policy requiring a Regular Army commission or approval for such an appointment as a prerequiste for entry into the general practice residency.

Each year of residency training in an Army hospital incurs an obligation of one year of duty after completion of training. For training in a civilian hospital, one additional year of obligated service is incurred. For example: for 3 years of residency training in a civilian institution, the officer obligates himself for 4 years of duty after completing his training.

The number of training spaces allotted for each of the specialties and subspecialties is governed by the Army's requirement for officers trained in a particular specialty and by the capability of the Army to conduct the training. In some specialties, the capacity for training is greater than the requirement. In such cases, hospitals that are entirely capable of conducting specialty training in a particular field may not have a program.

The residencies shown in Table II are classified as in either a basic specialty or a subspecialty. Eligibility for appointment in a basic specialty residency requires the completion of an approved internship. In the case of orthopedics, urology, and neurosurgery, the completion of a year of prespecialty surgical training is required. Eligibility for a subspecialty residency requires completion of a residency in either internal medicine or general surgery, depending upon whether training in a medical or surgical subspecialty is desired. Certification by a subspecialty board requires prior certification by either the American Board of Internal Medicine or the American Board of Surgery. It is preferable, but not essential, that an officer be certified by the appropriate basic board before beginning formal subspecialty residency training.

The program in preventive medicine consists of a combination of civilian and military training and is available in the fields of public health, aviation medicine, and occupational medicine.

For training in public health the officer attends a recognized university school of public health for a year of study leading to the degree of Master of Public Health. Following this he enters into a two-year residency training program. The first year of the residency portion of the program is spent in an approved civilian public health residency, usually at a state, county, or municipal health department. The following summer the officer attends a 3-months course in advanced military preventive medicine at the Walter Reed Army Institute of Research, after which he is assigned as a preventive medicine officer at a large military post which has been approved for the last year of residency training in this specialty. Selected individuals may be trained to the level of Doctor of Public Health.

The recent expansion in Army aviation has produced a need for board certified specialists in aviation medicine. To fulfill this need, the Army has established a three-year program in this specialty. Completion of the primary course in aviation medicine, as described un-

TABLE II

TABLE II

ARMY RESIDENCY TRAINING PROGRAM

Specialty	Length of Program including prespecialty where required. (Years)	Brooke —A.H.	Fitzsimons —A.H.	Letterman— A.H.	Walter Reed —A.H.	Tripler —A.H.	Wm. Beaumont —A.H	Madigan— A.H.	Ireland —A.H.	Womack— A.H.	Martin —A.H.	DeWitt— A.H.	U.S.A.H. Fort Campbell	Fort Dix	Fort Ord	U. S. Army Environmental Health Lab
*Allergy	1				X											
Anesthesiology	3	X	X (1)	X (1)	X											
*Cardio-vascular disease	1 or 2	X	X	X	X											
Dermatology	3	X		X	X											
*Gastroenterology	1			X	X											
Internal Medicine	3	X	X	X	X	X	X									
Neurology	3		X (2)	X (2)	X											
Neurological Surgery	5				X											
Obstetrics and Gynecology	3	X	X	X	X	X	X	X								
Ophthalmology	3	X	X	X	X											
Orthopedic Surgery	4	X	X	X	X	X										
Otolaryngology	4	X			X											
Pathology	4	X	X	X	X	X	X	X								
Pediatrics	2	X	X	X	X	X	X	X								
Physical Medicine	3		X	X	X											
Plastic Surgery	5	X														
Psychiatry	3			X	X											
*Pulmonary Disease	1		X													
Radiology	3	X	X	X	X	X										
Surgery (general)	3 or 4	X	X	X	X	X	X	X								
*Thoracic Surgery	2		X	X	X											
Urology	4	X		X	X	X										
General Practice	2								X							
Preventive Medicine	3													X (3)	X (3)	X (4)
Prespecialty Surgical Training	1					X				X	X	X	X			

* Subspecialty residencies.
(1) at the present time only the third year of this program is being used.
(2) approved for 2 years of training only.
(3) 3rd year of public health.
(4) 3rd year of occupational medicine.

der postgraduate courses, assignment as a field aviation medical officer for one year and one hundred hours flying time are prerequisites for application. This three-phase program consists of an initial academic year at a civilian school of public health leading to the degree of Master of Public Health, a year in the advanced course at the Navy or Air Force Schools of Aviation Medicine and a final residency year at Army, Navy or Air Force installations leading to eligibility for board certification in aviation medicine by the American Board of Preventive Medicine.

A student entering the training program in occupational medicine may earn either a master's or a doctor's degree. After completion of the academic portion of this training which is two years in length and is offered in a limited number of universities, the officer enters a final year of residency training arranged by the university in a civilian industrial plant or at the U. S. Army Environmental Health Laboratory at Edgewood, Maryland.

Fellowship Training Program

Fellowship training in many fields is conducted in Army medical facilities (Table III). These fellowships are generally one year in length and are designed to provide Army Medical Service officers with additional training in specialized fields. They may be used to broaden an individual's general knowledge or as preparation for an assignment in a particular field as a teacher or an investigator.

Time spent in a fellowship does not incur additional obligated time as does a residency, but neither does it count toward fulfilling a previously incurred obligation.

Seventeen pathology fellowships are conducted at the Armed Forces Institute of Pathology, Walter Reed Army Medical Center. They are designed primarily to provide additional training for individuals who already have had considerable experience in the field. Except for obstetric and gynecologic pathology, these fellowships are available only to individuals certified by an appropriate specialty board.

Table III

Army Fellowship Training Program

Armed Forces Institute of Pathology
Surgical Pathology
Dermal Pathology
Ear, Nose, and Throat Pathology
Orthopedic Pathology
Obstetrics and Gynecologic Pathology
Neuropathology
Genitourinary Pathology
Gastrointestinal Pathology, including Hepatic Pathology
Cardiovascular Pathology
Hematologic Pathology
Endocrine Pathology
Pulmonary and Mediastinal Pathology
Pediatric Pathology
Veterinary Pathology
Dental and Oral Pathology
Radiation Pathology
Ophthalmic Pathology
Walter Reed Army Medical Center
Hematology
Biologics Production
Immunohematology
Brooke Army Medical Center
Fellowship Training with Army Medical Service Surgical Research Unit

Three fellowships are conducted at the Walter Reed Army Institute of Research. The hematology fellowship is open to individuals who have completed residency training in internal medicine, pathology, or pediatrics. Board certification is desirable but not mandatory. The training includes clinical hematology as well as hematological research and is applicable to the clinician who wishes merely to broaden his knowledge of hematology or to the individual who desires to concentrate in this field.

The fellowships in biologics production is designed to acquaint the fellow with the methods for large-scale production of biological products, the problems that might be encountered and the approaches to their solution. This training will enable the individual to understand and supervise the operation of a biologics production facility.

The fellowship in immuno-hematology is concerned with the problems involved in a

blood and plasma transfusion service. This includes a study of rare blood types, the phenomena of agglutination and hemolysis, and the detection of unusual incompatibilities. The problems of transportation and storage are also studied. This training is designed to prepare the individual to operate a military transfusion service.

Three fellowships are available at the Surgical Research Unit, Brooke Army Medical Center. These are in surgery, internal medicine, and pathology. This training is designed to allow the individual to approach, from the standpoint of his particular field of interest, the subjects of trauma, burns, fluid and electrolyte balance, renal pathology, operation of the artificial kidney and other associated areas. This is a combined clinical and research program and is adaptable to the requirements of the individual.

A program of exchange fellowships of one year's duration at certain foreign medical centers is available to a limited number of highly qualified officers. This program, which has been limited to one or two officers per year, has included training in pathology, hematology, surgery, and other specialties. Training in other fields may be arranged.

Postgraduate Courses

In addition to the formal training provided in the intern, residency and fellowship programs, the Army has an extensive postgraduate medical education program consisting of long and short courses conducted at Army hospitals, laboratories, and schools, as well as at civilian institutions. While many of the courses conducted at Army medical facilities are of primary interest to physicians in the fields of clinical medicine and surgery, a number are in fields especially applicable to the military establishment. Short courses of the latter type include "Surgery in Acute Trauma," "Management of Mass Casualties" and "Principles of Medical Operations in Nuclear Warfare." Courses in the Clinical fields are similar to comparable courses conducted in civilian institutions.

Postgraduate courses vary in length from one day to two or more years and may be attended at various times in an officer's career. Courses of less than 20 weeks duration are considered "short courses" and the officer attends on a temporary duty status. Courses longer than 20 weeks generally require a permanent change of station. Short courses to be conducted at Army medical facilities during FY 1960 of particular interest to Medical Corps officers, are shown in Table IV. A Medical Corps officer desiring to attend one of the military short courses should submit his request in sufficient time for it to reach the Office of The Surgeon General at least 8 weeks before the beginning of the course. For attendance at courses given at civilian institutions, the request should reach the Office of The Surgeon General 90 days prior to the beginning date of the course. In cases where courses conducted at civilian institutions are not announced more than 75 days in advance of the beginning date of the course, which would make the 90-day application deadline impossible to meet, the officer may, if attendance at the course is approved by The Surgeon General prior to attending the course, pay his own expenses and request reimbursement from government funds. Reserve officers on active duty, as well as members of the Regular Army Medical Corps, are eligible to attend these courses. To be eligible for attendance at a course given at a civilian institution, a Reserve officer must have a minimum of one year of active duty remaining at the completion of the course. For attendance at a military short course he must have at least 6 months of active duty remaining at the completion of the course.

Among the long courses conducted at Army facilities is the 8-A-F6 course, also known as the "Military Medicine and Allied Science Course." It is designed to develop the highly qualified professional leadership needed in our treatment centers, teaching hospitals and research installations. It is not designed as a course to aid in passing a specialty board examination. This course is 9 months in length and is given at the Walter

TABLE IV

POSTGRADUATE PROFESSIONAL SHORT COURSES—FISCAL YEAR 1960

Courses available to Medical Corps Officers

Course	Date	Installation
Management of Radioisotope Clinics	6–9 July 1959	WRAMC
Advanced Military Preventive Medicine	15 July–23 Oct 1959	WRAMC
Management of Mass Casualties	27–31 July 1959 28 Sep–2 Oct 1959 30 Nov–4 Dec 1959 15–19 Feb 1960 25–29 Apr 1960 13–17 Jun 1960	BAMC
Symposium on Pulmonary Disease	14–18 Sept 1959	FAH
Management of Mass Casualties	14–19 Sept 1959 15–20 Feb 1960	WRAMC
Examination for Radioactive Contamination of Foods	28 Sept–20 Nov 1959	WRAMC
Principles of Medical Operations in Nuclear Warfare	5 Oct–6 Nov 1959	WRAMC
Occupational Medicine	12–16 October 1959 2–6 May 1960	AEHL
Application of Histochemistry to Pathology	26–30 October 1959	AFIP
James C. Kimbrough Urological Seminar	2–4 November 1959	BAMC
Present Concepts in Internal Medicine	2–6 November 1959	LAH
Forensic Pathology	8–13 November 1959	AFIP
Pathology of Diseases of Laboratory Animals	7–11 December 1959	AFIP
Social and Preventive Psychiatry	25–27 January 1960	WRAMC
Refresher Course for Laboratory Medical Officers	8–13 February 1960	WRAMC
Pathology of the Oral Regions	14–18 March 1960	AFIP
Surgical and Orthopedic Aspects of Trauma	14–18 March 1960	BAMC
Medico-Military Application Course for Nuclear Medical Officer	21 Mar–22 Apr 1960	WRAMC
Ophthalmic Pathology	28 Mar–1 Apr 1960	AFIP
Surgery in Acute Trauma	4–6 April 1960	FAH
Symposium on Current Surgical Practices	18–20 April 1960	WRAMC
Armed Forces Seminar in Obstetrics-Gynecology	2–6 May 1960	WRAMC
Advanced Orientation Course on Medical Aspects of Chemical Warfare	5–9 May 1960	ACC

Reed Army Institute of Research. To be eligible for this course, one must be a Regular Army Medical Corps officer, have a minimum of 3 years of service and have completed formal residency training in one of the specialties. Applications for this course must be submitted so as to reach the Office of The Surgeon General not later than 1 September of the year preceding the beginning of the course.

In addition to the need for officers trained in aviation medicine as described under the residency program, the Army has a requirement for a number of physicians trained as Aviation Medical officers. This primary course in aviation medicine is available to any Medical Corps officer on active duty who meets the proper physical standards for flying status and is a prerequisite for entry into the aviation medicine residency program. Officers selected for this program attend either the United States Naval School of Aviation Medicine at Pensacola, Florida, or the United Air Force School of Aviation Medicine, Brooks Air Force Base, Texas. The program at Pensacola is twenty-two weeks in length and includes flight training up to the point of soloing. The student may continue through solo flight if he so desires. The course at Brooks Air Force Base is 9 weeks in length but does not include flight instruction. The former course requires

qualification under Class II physical standards for flying status; the latter course requires qualification under Class III. Following completion of either of these courses, the officer reports to the United States Army Aviation School at Fort Rucker, Alabama, for two weeks, after which he is assigned to a duty station as an Aviation Medical officer. With this training, he may qualify for incentive pay of $110 per month.

Those officers who have demonstrated interest and ability in hospital administration may attend the Hospital Administration course offered jointly by the Army Medical Service School, Brooke Army Medical Center, Fort Sam Houston, Texas, and the Graduate School, Baylor University, Waco, Texas. This affiliation permits students with a Baccalaureate Degree to enroll in the Graduate School at Baylor University as candidates for the degree of Master of Hospital Administration. To be eligible for this course the offier must have attended the Army Medical Service Officer's Advanced Course or have equivalent constructive credit, have a minimum of 8 years of active commissioned service, be under 40 years of age, and have 3 years of active duty eligibility remaining.

Career officers, either Regular or Reserve, may attend one or more of the military staff colleges. These include the Command and General Staff College, the Army War College, the Armed Forces Staff College, the National War College, and the Industrial College of the Armed Forces.

The Command and General Staff College, located at Fort Leavenworth, Kansas, offers a long and short course. The mission of this staff college is to prepare selected officers of all components of the Army for duty as commanders and general staff officers. The level of responsibility is that of division, corps, field army, including their logistic systems, the communications zone and its subordinate elements, and the theater Army personnel replacement system. To be eligible to attend the long course, which is 38 weeks in length, the officer must be under 41 years of age and have promotion list service of not less than 8 and not more than 15 years. For attendance at the short course, which is 16 weeks in length, the officer must be under 44 years of age and have promotion list service of not less than 15 and not more than 19 years.

The course offered at the Army War College at Carlisle Barracks, Pennsylvania, is approximately 9 months in length and prepares selected Army officers for command and general staff positions in joint, allied, and combined commands. It develops the tactical and logistical doctrine relating to the organization, employment, and operations of Army groups and theater Armies. The scope of instruction includes national and international affairs. There is no age limit for attendance at this course, but eligibility is based on promotion list service of not less than 15 and not more than 25 years of service.

The course offered at the Armed Forces Staff College, located at Norfolk, Virginia, is 26 weeks in length and is offered twice yearly beginning in August and January. This is a joint educational institution operating under the Joint Chiefs of Staff. For selection an officer must have a minimum of 10 years and not more than 21 years of commissioned service. The mission of this school is to train selected officers of the Armed Forces in joint and combined operations.

The National War College, located at Fort Lesley J. McNair in Washington, D.C., offers a course of 9 months duration. This also is a joint educational institution operating under the jurisdiction of the Joint Chiefs of Staff. It offers a course of study to selected personnel of the Armed Forces and State Department in military, economic, scientific, political, psychological, and social factors to prepare them to assist in the planning of national strategy. To be eligible to attend this college an officer must have a minimum of 15 and not more than 23 years of commissioned service.

The Industrial College of the Armed

Forces, also located at Fort Lesley J. McNair, is, like the above two colleges, operated under the jurisdiction of the Joint Chiefs of Staff. It starts in early September and lasts approximately 10 months. The curriclum offered encompasses a study of all phases of the national economy, joint logistic planning, and peacetime and potential wartime governmental organizations. To be eligible for attendance at this college, the officer must have had a minimum of 15 years but not more than 23 years of commissioned service.

In additon to the criteria set forth above, an officer must, to be eligible to attend one of the latter 3 schools, have credit for the Command and General Staff College.

For highly specialized training that is not available at Army hospitals, laboratories, or service schools, Army Medical Service personnel may be sent to civilian institutions for periods ranging from a few days to one year or more. Here too, a course of less than 20 weeks duration is considered a short course. While the enrollment of Medical Corps officers for long-term training at civilian colleges and universities is a program of limited application, attendance at short courses given at civilian institutions has provided the Army Medical Service with a means of meeting requirements for training in highly specialized fields. Examples of this are "Endaural Temporal Bone Surgery, Including the Fenestration Operation," Lempert Institute of Otology, New York; "Institute on the Care of Premature Infants," New York Hospital, Cornell Medical Center; "Lancaster Course in Ophthalmology," The Ophthalmological Study Council, Sullivan Maine; "Tropical Medicine," Louisiana State University, and many others.

The training of Nuclear Medical Officers (MOS 3004) is a combination of inservice and civilian institution training. It begins with didactic training at Reed College, Portland, Oregon, where formal instruction for approximately 24 weeks is given in mathematics, nuclear physics, and radiochemistry. This is followed by 6 weeks at the Hanford Works, Richlands, Washington, studying health physics, radiological safety and isotope techniques. A trip to the Nevada test site for a week of military radiological safety problems is combined with 2 weeks at Headquarters Field Command, Defense Atomic Support Agency, Sandia Base, New Mexico, for special weapons orientation and medical application. The course is concluded by 6 weeks at Walter Reed Army Institute of Research for application of previous training in the evaluation of the effects of nuclear weapons, management of mass casualties, and a study of interservice staff problems.

In addition, the facilities of civilian institutions have been used to train Army Medical Corps officers in endocrinology, hand surgery, children's orthopedics, psychoanalysis, child psychiatry, and other fields in which the Army does not have a training capability.

On-the-job Training Program

The last of the general categories of professional training available to the Medical Corps officer is "On-the-Job Training." This program is conducted entirely within Army medical facilities and is designed to train officers in specialized fields in which adequate knowledge of the subject can be obtained by working in the field under supervision. This program is available to Medical Corps officers of all components, grades, and stages of training. The number of individuals entering this program is dependent upon the requirement of the Medical Service for physicians with the particular training concerned. In the recent past a number of individuals just completing an internship have received training under this program in pediatrics, dermatology, obstetrics, psychiatry, otolaryngology, and other fields. This program has been markedly curtailed during the past year but could be increased at any time if the need should arise.

Medical Corps officers who have completed formal training in one of the specialties, have received on-the-job training in the use

of radioisotopes, operation of the artificial kidney, allergy, thoracic surgery, pulmonary function studies, and other specialized fields. This latter category of on-the-job training is available primarily to physicians who can be expected to be on active duty for 3 or more years and is available in practically all clinical and basic science fields. It is obtained while on a duty status and does not incur a service obligation.

Summary

The training program for Army Medical Corps officers includes internship, residency and fellowship training, postgraduate courses in both military and civilian institutions, on-the-job training, and combinations of these programs, leading to eligibility for specialty board examinations, to advanced degrees, or to the enhancement of one's knowledge in a particular field. In addition to established programs, training in any specialty may be arranged if considered to be of value to the Army Medical Service.

References

AR 350-60, dated 26 June 1956, with Changes 3, dated 6 June 1957—Army Extension Courses.

AR 350-101, dated 15 February 1957—Joint Colleges.

AR 350-104, dated 15 December 1958—U. S. Army War College.

AR 350-105, dated 19 November 1956—Command and General Staff College.

AR 350-152, dated 25 July 1955—Medical Field Service School.

AR 350-200, dated 29 May 1958, with Changes 1, dated 28 August 1958, Changes 2, dated 3 November 1958, Changes 3, dated 19 March 1959—Training of Military Personnel at Civilian Institutions.

AR 350-218, dated 28 January 1957, with Changes 1, dated 20 August 1958—Training of Army Medical Service Personnel at Civilian Educational Institutions.

AR 350-219, dated 31 August 1955, with Changes 1, dated 29 June 1956, Changes 2, dated 28 May 1958—Professional Education and Training For Army Medical Service Officers.

AR 350-220, dated 26 April 1957, with Changes 1, dated 28 May 1958—Medical Corps Internships, Residencies and Fellowships.

DA Circular 350-20, dated 15 September 1958, and subsequent publications under the same title—Fellowship Training For Army Medical Service Officers.

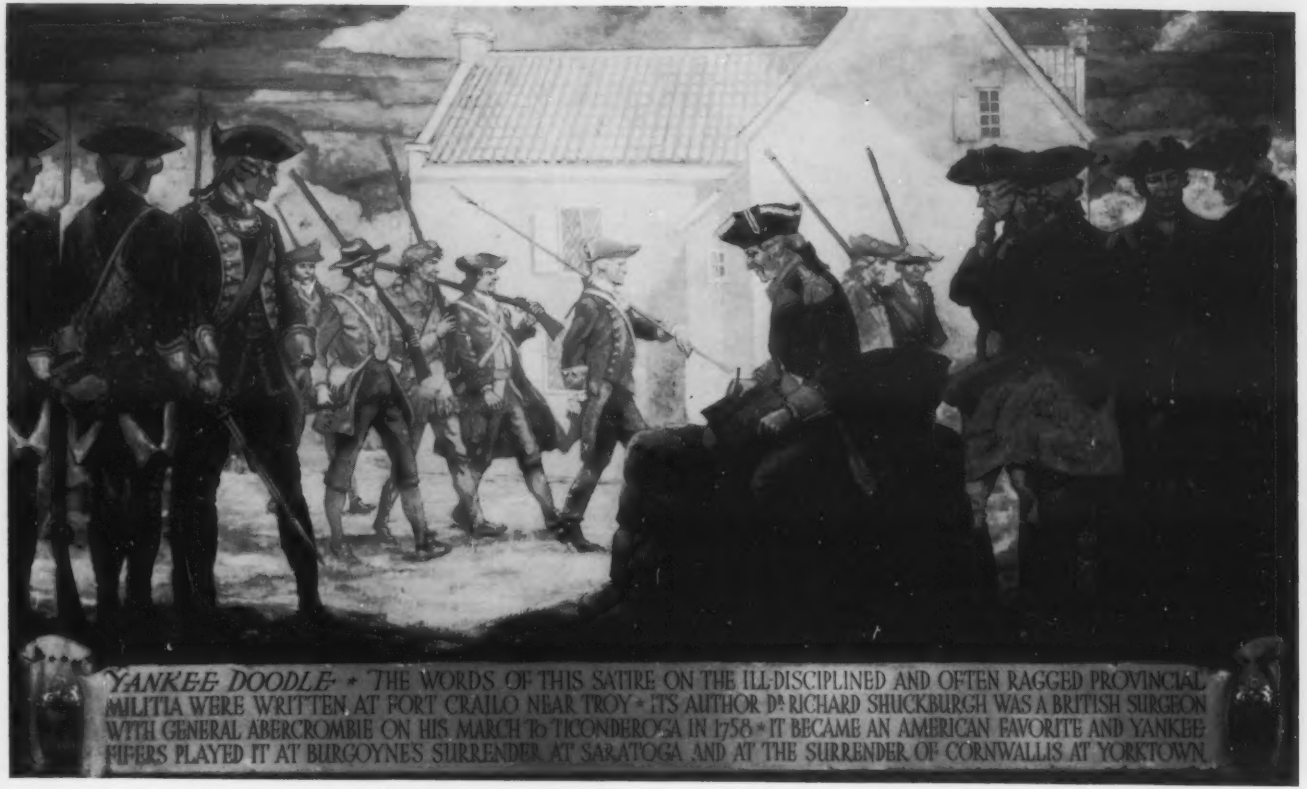
DA Circular 350-21, dated 15 September 1958 and subsequent publications under the same title—Long Course Training at Civilian Institutions For Army Medical Service Personnel, Fiscal Year 1960.

DA Circular 621-21, dated 9 July 1959, and subsequent publications under the same title—Postgraduate Professional School Courses For Army Medical Service Officers, Fiscal Year 1959.

AR 350-221, dated 14 November 1957—Army Aviation Medicine Training.

"Given the sacred hunger and proper preliminary training, the student-practitioner requires at least three things with which to stimulate and maintain his education: a notebook, a library, and a quinquennial braindusting. I wish I had time to speak of the value of note-taking. You can do nothing as a student in practice without it. Carry a small notebook which will fit into your waistcoat pocket, and never ask a new patient a question without notebook and pencil in hand."

Sir William Osler, "The General Practitioner" in *The Student Life*, Williams & Wilkins, Baltimore.


YANKEE DOODLE * THE WORDS OF THIS SATIRE ON THE ILL-DISCIPLINED AND OFTEN RAGGED PROVINCIAL MILITIA WERE WRITTEN AT FORT CRAILO NEAR TROY * ITS AUTHOR Dr RICHARD SHUCKBURGH WAS A BRITISH SURGEON WITH GENERAL ABERCROMBIE ON HIS MARCH TO TICONDEROGA IN 1758 * IT BECAME AN AMERICAN FAVORITE AND YANKEE FIFERS PLAYED IT AT BURGOYNE'S SURRENDER AT SARATOGA AND AT THE SURRENDER OF CORNWALLIS AT YORKTOWN

EDITORIALS

American Exhibit, 1959

SOVIET EXHIBIT IN NEW YORK OPENS—IT'S U. S. TURN NEXT

The sight of the Soviet hammer and sickle decorating the lofty white wall of the New York Coliseum should give no sensible American the jitters. Beside it is the Stars and Stripes—and it is important to remember that the Stars and Stripes will be prominently on view when Vice President Nixon opens the American National Exhibition in Moscow.

This Soviet Exhibition of Science, Technology and Culture is giving the U. S. its first big-scale look at the life of Communist Russia since the World's Fair of 20 years ago. Thousands of Americans will see the more than 10,000 displays and judge for themselves how the Soviet good life compares with their own.

It should be most educational—a reminder that the American way of life has no rival in the material blessings it bestows. This is not to disparage the Soviet products simply because they carry the "U.S.S.R." label. It is an historic fact that Russia's industrial and technological progress has been remarkable—although, in human terms, achieved only at an appalling cost.

For the U. S., the interchange of exhibits is eminently practical. It affords us an unprecedented chance to put ourselves on view before the Russian people without distortions of propaganda. We welcome the Soviet exhibition in New York because our own exhibition in Moscow will tell the American story—to hundreds and thousands, even millions, of eyes and ears eager to see and hear it. (AFPS). *Reprinted in PNS Beacon, 17 July 1959.*

MATERIAL blessings are not (or should not) be an end unto themselves. They simply are a means to a more abundant life. In this industrial era, the age of automation, material things rapidly become a glut on the market and from such a surfeit, we, as a nation, are now suffering: too much wheat, too many eggs, too many automobiles, a plethora of filtered tobacco, too many mink coats, an annual surplus of refrigerators, televisions and radios. In short, too much of every*thing*—which can be had for a price.

But spiritual blessings require, nay, *demand* sacrifice, hardship, self-denial, tribulation and even turmoil of the inner man, which can not be obtained for the asking nor by virtue of frenetic advertising.

"Deliver us, we beseech Thee, in our daily tasks from the service of mammon that we may do the work which Thou givest us to do in truth, in beauty and in righteousness."

True, we can not do our work without material aids but such aids are mere means to an end and not an end unto themselves. The zest of living lies in pride of accomplishment —and often the cost is measured in tears and sweat and blood and guts; pride in the sacrifice of self for the benefit of the group; in short, self-sacrifice for the brotherhood of man, the community of common-weal.

YANKEE DOODLE

For the foregoing picture we are indebted to the painter Mr. George Gray of 140 West 66th Street, New York.

Mr. Gray a mural painter was born in Harrisburg, Pa., December 23, 1907. He was educated at the Harrisburg Technical High School, the School of Industrial Art, Philadelphia, the Academy of Fine Art, Wilmington, Delaware, and at the Art Students League, New York. His murals can be seen in many of the hotels in the Eastern States.

For it is the spirit in which we work that sanctifies and hallows the task. And the spirit of "service beyond self" is the *sine qua non* of true happiness. This, indeed, may be the clarion call of Communism—believe it or not; sacrifice of self (the individual) for the good of the group (the State). Herein could lie the secret of the success of their "society."

While we in the United States are almost dedicated to the worship of material things (the flesh pots of Egypt), they in Russia are dedicated even to death in the worship of their State (aggrandizement of the Soviet).

We stress the dignity of the individual, while they accept the "rule of the masses"—and sacrifice the individual for the welfare of the group. The crux of the matter is "sacrifice"—a term which we neither understand nor to which do we pay true homage or allegiance.

Russia's industrial and technical progress has been remarkable and undoubtedly such progress will accelerate as surely as time continue. Why? Because no personal sacrifice by a "Comrade" is considered too great if it contributes to the welfare of the State. Because science, engineering, research and development demand strict and difficult self-discipline over a long period of training, Soviet scientists and engineers and investigators receive homage not only from the masses but from their Government as well. This, in turn, fosters greater self-discipline by the scientists for further achievement in their specialties and indirectly accrues to the benefit of their form of government and the perpetuation of Communism.

Unless we pause to consider the source of the Russian success-story, we may well be overwhelmed by our own "material blessings." We have geared our democratic form of society to the production of gadgets; in Russia they say they are dedicated to the release of the people from bondage—the thralldom of monarchy, of ecclesiastical authority, and of capitalism. Whether or not we approve, they have succeeded in the first two areas and may soon triumph in the third.

Obviously, it is high time we pause and do a bit of soul-searching of our own. If one prefers not to entertain such unpleasant thoughts, inflation will undoubtedly step in rather promptly and do our thinking for us. Then there could well be a depression of our national spirit as well as financial panic—unless the "great awakening" of the individual American puts in appearance first.

Our Congratulations

CONGRATULATIONS to Rear Admiral Winchell McK. Craig, Medical Corps, U. S. Naval Reserve, Retired, and Past President of the Association of Military Surgeons of the U. S., upon his appointment as Special Assistant to The Honorable Arthur S. Flemming, Secretary of Health, Education, and Welfare.

Dr. Craig replaces Dr. Aims C. McGuinness who has been Dr. Flemming's Assistant for Medical Affairs.

Admiral Craig, Professor of Neurosurgery, Mayo Foundation, University of Minnesota, Rochester, Minnesota, was Chief of Surgery in the U. S. Naval Hospital, National Naval Medical Center, Bethesda, Maryland, during World War II. However, his military experience dates back to World War I when he enlisted in the U. S. Army, Medical Department, while a medical student at Johns Hopkins University. After that war he resumed his medical studies and received the degree of Doctor of Medicine from Johns Hopkins Medical School in 1919.

He became a Fellow of the Mayo Foundation and as time went on he became Head of the Department of Neurosurgery, Mayo Foundation.

Dr. Craig is the inventor of the Craig Headrest, and is author of over 290 medical papers and chapters in monographs or systems of medicine. His recent retirement has afforded him more time for study and teaching in his specialty.

Our Government will truly benefit from the vast experience of this great surgeon.

Command Decisions

ONE of the finest books we have read recently is *Command Decisions,** which has been prepared by the Office of the Chief of Military History of the Army.

Decisions by high command may spell defeat or success. Much information must be available—even then there is never enough it seems. In this book we even see the juggling back and forth before decisions were made. What were the moves in this World War II game in which the globe was used as the playing board?

Hansom W. Baldwin in his Introduction to this book says, "The great decisions here recounted deal with many of the echelons of command—the decisions of chiefs of state on grand strategy; the decisions of theater commanders; the decisions of general staffs and combined chiefs of staff; the decisions of corps commanders."

Now we can read why we moved first into Africa, why we did not move into the Balkans, why the Asiatic-Pacific Theater was given second place. Not only the side of the Allies is presented but also that of the opposition for all this information is now available through the war records of both sides and through interviews with survivors.

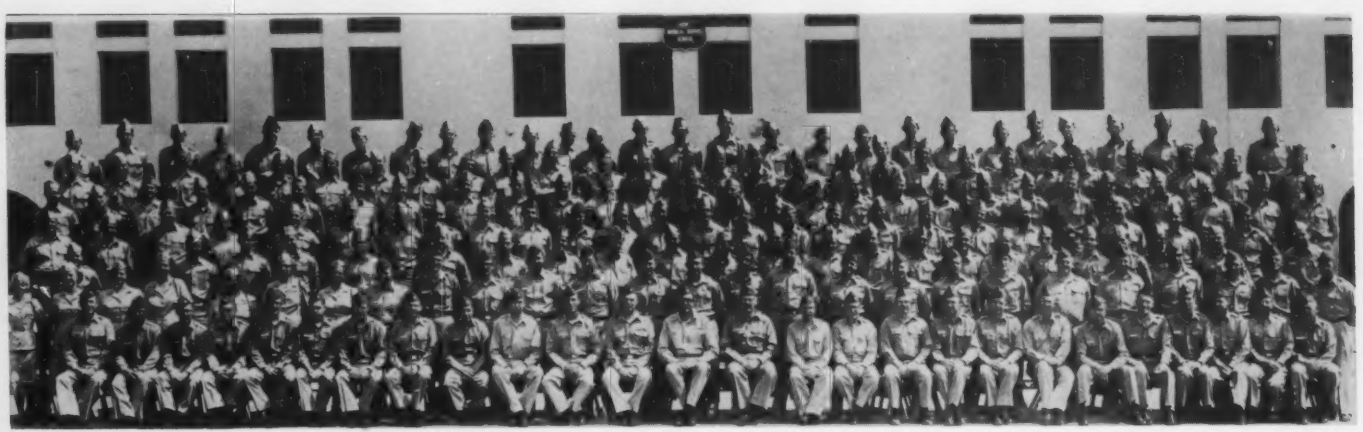
Command Decisions is an important book for military leaders. It makes interesting reading for those who would be informed on the events occurring during World War II. The book is a definite addition to the history of that period.

* *Command Decisions*, Harcourt, Brace and Company, New York, $5.95.

"If because of smugness or self-satisfaction, or the desire to avoid having to fight for what we believe, we should hug our cherished freedom to our bosom and imagine that we could continue to be free and to prosper without regard to what is happening to free people in other parts of the world, we would be living in a fool's paradise. In the final reckoning, the crushing of liberty anywhere on earth is the extinguishing of liberty everywhere. Every blow at any free nation is struck at all."

Secretary of the Army WILBER M. BRUCKER.

328TH GENERAL HOSPITAL (RESERVE), FORT DOUGLAS, UTAH



The 328th General Hospital is a 1000-bed U. S. Army Reserve unit at Fort Douglas, Utah. This hospital has 225 officers and enlisted men, and is commanded by Colonel Wallis L. Craddock, MC, USAR, a specialist in Internal Medicine, Chief of the Outpatient Service, V.A. Hospital, Salt Lake City, Utah, and winner of the Wellcome Medal and Prize for 1953. (See January 1954 *Military Surgeon.*)

Other officers are: Lt. Colonel Floyd A. Abbott, Executive Officer; Colonel Paul Keller, Chief of Professional Services; Colonel Robert R. Robinson, Chief of Surgery; Colonel Kenneth Dedekind, Chief of Dental Service; Colonel Madison H. Thomas, Chief of Neuropsychiatry Service; Lt. Colonel Dorothy Stitzer, Chief of Nursing Service; Capt. A. M. Schmidt, Chief of Medical Service; Major Milton Widdison, Chaplain; Major Merlin Leishman, unit commander; Captain Glenn C. Conover, Chief of Social Service; and Captain Lewis T. Neilson, Adjutant. Captain Clyde J. Lindsay is the Unit Advisor.

On-the-job training was started in February 1959 at the Veterans Administration Hospital, Salt Lake City, for one full Sunday each month. Two Wednesday nights a month the members meet for training at Fort Douglas.

The Hospital finished two weeks of summer active duty training at the Brooke Army Medical Center, Fort Sam Houston, Texas, which included the demonstration "Operation Blow-up" at Camp Bullis, a vivid portrayal of new concepts in handling the important problem of mass casualties.

SUSTAINING MEMBERS

It is a privilege to list the firms who have joined The Association of Military Surgeons as Sustaining Members. We gratefully acknowledge their support.

ABBOTT LABORATORIES
AMERICAN STERILIZER COMPANY
ASTRA PHARMACEUTICAL PRODUCTS, INC.
AYERST LABORATORIES
BAXTER LABORATORIES, INC.
BECTON, DICKINSON AND COMPANY
BURROUGHS WELLCOME & CO. (U.S.A.) INC.
CIBA PHARMACEUTICAL PRODUCTS, INC.
COOK-WAITE LABORATORIES, INC.
CUTTER LABORATORIES
EATON LABORATORIES, DIVISION OF THE NORWICH PHARMACAL CO.
GENERAL ELECTRIC COMPANY
HOFFMANN-LA ROCHE, INC.
LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID CO.
LILLY, ELI, AND COMPANY
MALLINCKRODT CHEMICAL WORKS
McNEIL LABORATORIES, INC.
MEAD JOHNSON & COMPANY
MERCK & CO., INC.
ORTHOPEDIC EQUIPMENT COMPANY
PARKE, DAVIS & COMPANY
PFIZER, CHAS. & CO., INC.
PICKER X-RAY CORPORATION
RITTER COMPANY, INC.
ROBINS, A. H., COMPANY, INC.
SCHERING CORPORATION
SEARLE, G. D., & CO.
SMITH KLINE & FRENCH LABORATORIES
SQUIBB, E. R. & SONS, DIVISION OF OLIN MATHIESON CHEMICAL CORP.
STEPHENSON CORPORATION
UPJOHN COMPANY, THE
WARNER-CHILCOTT LABORATORIES
WINTHROP LABORATORIES, INC.
WYETH LABORATORIES

Around the World

(Ser. III, No. 14)

By
CLAUDIUS F. MAYER, M.D.

NAPHTHALAN is a special bathing place in Azerbaidzhan where certain skin diseases and certain affections of the locomotor and nervous system are treated. The patients are put into bathtubs filled with naphtha, and then they are exposed to the sunshine. There are many *health resorts and bathing places in the U.S.S.R.* Many are located in the Crimea (Yalta, Artek, Simeis, Gursuf), on the Caucasian coast of the Black Sea (Sochi, Gagra, Sukhumi, Batumi, etc.). Here are the most important sea baths, sanatoria and convalescent homes. The land has about 3,500 mineral springs, therapeutic mud, and a great variety of other places suitable for the recovery of health. *Climatotherapy* can be practiced to its fullest variety. In the neighborhood of Odessa, one may get the benefit of the dry climate of the steppe. In the forest areas of the Karelian, or around Kiev, or at the beautiful Karachi Lake near Omsk and in Western Siberia, many health resorts have developed.

High altitude climate is available at Chemal in the Altai Mountains, at Bad Arshan in the Burjat-Mongolian Republic as well as at Abalakh and Kempendyai in Yakutia. Many visitors are also going to the *high mountains of Central Asia,* especially to Issyk-Kul in Kirgizia. The oasis Bairam-Ali in the Turkmenian desert is recommended for kidney diseases. Generally known are the many mineral baths of the Caucasus (Kislovodsk, Naltchik, Yessentuki, Borshomi, Dzhermuk, etc.). At the bathing place Yangan-Tau in Baskiria, sick people are treated with vapors and hot air that emanates from the rocky crevices of the Yangan-Tau Mountain. There are about 450 health resorts of the Soviet Union open to every Soviet citizen.

Therefore, *travelling to a spa* is quite usual for the entire family, according to a Soviet reference work's statement. The *homes for recovery,* some 900 of them, with a total capacity of 159,000 beds, are actually places where those who have money can enjoy the American comfort of the big Miami hotels. These recovery homes are provided with clubs, libraries, sport places, dancing halls, and movies. The sanatoria (2,102 in 1956, with 289,000 beds) are for sick people who are under the care of professors and physicians. The yearly traffic in patients at these sanatoria was five million in 1956. Of course, 80 percent of the available places are reserved for the workers and employees who have to pay 30% of the costs (while 70% is paid by the unions). The 20 percent of places remaining are freely distributed. The stay at the children's sanatoria and at the institutions for bone tuberculosis is also free.

The *soviet principle* is that the health of its citizens is the task of the entire society; hence, it is a state affair. Thus, in the past decades an elaborate network developed in which the physicians as employees of the State are engaged in preventive medicine as well as in the ambulant and the hospital treatment of the sick. The *number of hospitals* thus grew to 24,000 in 1956 (it was 4,554 in 1913), with 1,360,00 beds. The physician is not forbidden to practice privately, and there are also some facilities in the cities for *private practice.* But, the State institutions are so much better that only a very few persons may seek the doctor's help privately.

The working hours of the doctor are *6 hours daily* as an average. For those who are exposed to special dangers (e.g., radiation) the daily hours of work are limited to five. Half an hour of his time the doctor must spend in health education of the people and

of his patients. His income varies according to his years of service and his academic degree. Thus, for instance, a medical professor receives *6,000 rubles monthly;* the State allows him a free automobile, and pays the salary of the chauffeur.

The *social position of a Soviet doctor* is very high. His power of decision whether someone should be sent to a sanatorium or whether a certain industrial establishment should be closed for sanitary shortcomings gives him this respected position in society. Thus, his *material and cultural needs* are surely fulfilled.

In the U.S.S.R., every industrial worker is *insured against sickness, old age and disability.* The costs of this insurance are carried partly by the trade union to which he belongs. Medical help is available in the following forms: (1) ambulant treatment at the Outpatient places of the hospitals, and at special dispensaries and policlinics as well as at the health posts of industrial plants, etc.; (2) treatment at home, with visits by the doctor, by the district doctor of the State public health service; (3) first aid by special stations and by the public health doctors; (4) hospital treatment. All these are free for the citizen. Special examinations (x-ray), drugs, nursing, baths, and massage are similarly free. Those who wish to be treated at home must purchase the prescribed drugs in the *pharmacy shops* (about 83,000 in 1956). The dentures and artificial eyes must be paid by the patients (except for war veterans, disabled workers, old-age pensioners, and similar classes of persons).

The *policlinics of the industrial plants* are for the specific employees of the plant. These institutions do the preemployment physical examination, the health prevention, work hygiene, health hazards, accident treatment and ambulant treatment of the sick. In large industrial plants, there are bed stations. *Night sanatoria,* also called prophylactoria, serve chiefly for preventive medicine. The worker who is sent there goes there each night for about a month, and spends his free time there. Patients will also be treated who have a tendency to some disease, or who are suffering from a chronic ailment. Few infectious diseases are still observed. Most of the old-time plagues have been reduced or eliminated. There are special *epidemiological stations* (5,452) for sanitary vigilance. Vaccinations play a great role in this fight; indeed, they are carried out wholesale.

What does a person do in Soviet Russia if he should be able to *save some money?* The advice of the Soviet government is: "Put it in the State Bank." There are so-called "Savings Banks" (Sberetatel'naya Kassa) which promise to put the money into good State use and, as a compensation, will pay some interest to the saver. The *interest rate* is now between 2% and 3%. The total amount of money in the savings banks of Russia was 63.75 billion rubels in 1956. If someone should have enough interest from his savings so that he could live without working he may do so legally, but the Soviet government does not believe that anyone would do so. How about *Soviet millionaires?* A few writers may earn that much, but they will never be allowed in Soviet society to become "capitalists," the Russians say. On the other hand, a Soviet millionaire may use his money for all imaginable personal purposes: —buying a house in the city, another one in the south, a luxury auto, a small car for the adult children, the best clothes and shoes, jewelry for his lady, beautiful rugs, paintings, books, etc. Supposedly there is no kind of taxation!! A pseudo-Utopia, definitely not for the proletars, but for the élite of the pashas, princes, dukes, and counts of the Communist dictotorship!!

How different is the situation of physicians in France where great consternation was caused by an *order of the French government,* dated on the last day of 1958, which, inspired by a plan of Prof. R. Debré, attacked the existing system of *medical education and the practice of medicine* in the hospitals. Actually, the official order created a fusion of the medical faculty of the university and the hospital staff in the university towns. It instituted a country-wide

Corps of Hospital and University Medical Personnel, to be recruited by national competition, and it demanded the full-time presence of the members of this Corps at the hospitals. The order was promulgated during the last week of April 1959. Though the *Plan of Debré* and the Order wishes to improve medical education in general by the close association of scientific clinical research with the hospital medical staff, the new order is definitely against many private medical interests. Those who are hostile to the new arrangements began to protest vehemently in the daily press, in the professional journals, at the societies and medical academies. One of the main objections is that the government should not forcefully change the nature of the formerly voluntary teaching and hospital medical staff into a body of State officialdom. The other is that the new program would require a tremendous program of new construction since the French hospitals are below the established new standard of educational equipment and they also lack an adequate teaching personnel. Actually, this is a fight between the *Old Timers and the Modern Youth*. And, ultimately, since the French government also wants to keep its medical profession contented, several exceptions have already been made in connection with the private practice in the hospitals. Chiefs of the hospital departments may further receive their private paying patients in their official rooms. However, their private income will also be considered in establishing their official salary. A hospital physician who is also an adjoined "agrégé" professor at the university will have about 15,000 dollars (in francs) a year. The physicians are permitted to have an option in accepting the "full-time" character for their university-hospital work, or to continue to remain in "statu quo." The supplementary instructions of the French government also guarantee the safeguarding of the principles of medical ethics, the principle of therapeutic freedom, and the strictly private character of the relationship of practitioner and "private" patients.

The distinguished curator of the Coryndon Museum at Nairobi (Dr. Leakey) reported at the Fourth *Pan-African Congress of Prehistory* that he found another ancient human (?) skull at Olduwai, Tanganyika. At this site, various earlier discoveries of prehistoric human skeletons were made. But the new specimen is geologically of the earliest date, probably half a million years old. It seems that the capacity of this skull must have been about 600 cubic centimeters. Taking in account the canines and other found teeth, and the conformation of the mastoid and zygomatic regions, the discoverer thinks that he found a man which (?) is more advanced than the Australopithecus group, and he proposes to call the new human (?) genus *Zinjanthropus boisei*. According to the Editor of the British Medical Journal, whatever this ancient creature had been, it is sure that it must have had some intelligence because several crude artifacts, tools have been found in the same fossil deposit. Thus, *tool-making must have antedated brain enlargement* in the course of human evolution.

At a recent medical *congress in Edinburgh* (July 1959), Canadian and British practitioners had time also to discuss the *vagaries of blood pressure*. One of them reported that, according to the age of a person, his blood pressure has periods of lability and stability. The pressure is labile from the ages of 15 to 19, stable from 20 to 54, again labile from 55 to 62 (the usual period of the climacteric), and again becomes stable. Emotional factors are often the cause of a rising blood pressure which tends to persist. It is evidently difficult to say what the "normal" pressure is after 60 years of age. In an Edinburgh doctor's opinion, the *normal pressure for people over 65* is 120 mm Hg plus half the age. The common form of hypertension after the middle age is the systolic variety. It makes slight symptoms only, and is often related to anxiety. It is of a good prognosis, and can be generally handled by advising the person to be moderate in everything. This hypertension is almost a physio-

logical consequence of aging, and its too zealous reduction may be dangerous for health. (But, did anybody ever find a simple formula how to be moderate in everything?)

Various experimental studies of recent years suggest that increased sodium or *salt intake* may cause a rise of the blood pressure, and may play some role in the pathogenesis of hypertension. The same experimental observation is also confirmed by anthropological evidence. *Hypertension* is extremely *rare among the Australian aborigines,* among the Cuna Indians of Panama, and among the tribes from the Szechwan mountains of *West China.* All these people are known to consume not more than about one to two grams of salt, or less daily. Perhaps, some genetic factors may also be responsible for the rarity of high blood pressure among these mostly uncivilized people.

Great interest has been shown by public health officers, sanitarians, food packers, quartermasters of the armies all over the world in the *irradiation preservation of foods.* The basic idea is to destroy the bacteria, bacterial spores and harmful enzymes in the food by radiant energy (electron beams or gamma rays) without ruining the taste, flavor, color and consistency of the food to be stored. The difficulty is that the sterilizing dose of radiation is sometimes so large that the irradiated food will lose all its appetizing qualities. There is also a great difference in the resistance of pathogenic agents to radiant energy. Thus, no uniform practice of irradiation can be elaborated. For instance, the complete destruction of the Clostridium botulinum would require 4.8 million rad units. Hence, for some types of food the irradiation, or *"cold pasteurization,"* would be very expensive and uneconomical. Another anxiety is whether the irradiated food could cause any unfavorable effect in man. In rats, for instance, which are given irradiated beef, a hemorrhagic syndrome may develop. Moreover, in the irradiated food certain atoms become radioactive to a measurable degree. This is perhaps the reason that in the U.S. Army the consumption of any irradiated food has been recently prohibited.

One of the latest, newest English-language journals is the *Panminerva medica,* which is the official organ of the Italian Medical Association. It gives an excellent survey of the advances in Italian medicine, and it is published by the well-known publishing house, the Minerva Medica in Torino.

Among the recent deaths, we noted with sorrow the end of our friend, *William W. Francis,* M.D. (1878-1959 Aug. 10) who was librarian of the Osler Library at McGill University at Montreal. He was a relative of Sir William Osler, and, being a classical scholar and bibliophile, he undertook the cataloging of Osler's library in Oxford. This library, which was later rehoused in Montreal, is very rich in incunabula and early prints of medical classics. Hence, the catalog which Dr. Francis prepared under the title of *"Bibliotheca Osleriana"* became an important reference tool for medical historians and booksellers alike. Dr. Francis was one of the few people who, in spite of five successive coronary attacks, was granted the privilege to reach his early eighties.

The *Institute of the History of Medicine in Rome* was founded only last year. Yet, due to the generosity of its director, it also has a *museum* which contains many interesting and unique items. It also serves as a documentary record, with the many authentic pieces. There are all sorts of pharmaceutical jars, vases, crucibles, mortars, flasks, etc. The museum also owns Tagliacozzi's 16th century equipment for plastic surgery, bronze "tumiaks" which the pre-Columbian Inacs used for drilling the skull. Major interest is due to the artificial joints and limbs *made by Fabrizi of Acquapendente,* a 180 cm long horn of the unicorn (legendary medieval animal), a chastity belt. From the more modern times, we find the original *crutches of Garibaldi,* Bottini's original early cystoscope with a kerosene lamp, used for galvanocautery of the prostate, and the *first examples of penicillin* obtained by B. Gosio in 1896 in the Rome laboratories of public health.

A year ago in December (1958), the Second *Australasian Conference on Radiation Biology* was held at the University of Melbourne. Various aspects of radiation hazards formed an interesting group of papers. A report from the Australian *Atomic Weapons Test Safety Committee* showed that levels of radioactive fall-out in Australia were extremely low. Earlier, much significance was attached to the examination of the blood picture as a sign of exposure to radiation. Now, it is considered of less value, particularly at low levels of exposure.

The other day I had an opportunity to examine a person who had been *exposed to radiation. According to his film badge* he had received 355 milliroentgen gamma rays in the form of a single dose of total body irradiation. This is, of course, a minimum amount, below the *injurious doses of radiation.* According to the present observations, the following are the effects of total body irradiation: at 25 r...borderline dosage below which no clinically noticeable changes will occur; 25 to 100 r...lymphopenia, other slight symptoms; 50 r...reduction of lymphocytes; 75 r...critical dosage ("emergency dosage"); 100 r...nausea, vomiting, fatigue; 100-200 r...stronger and longer lasting lymphopenia, serious radiation sickness, occasional fatal cases; 150 r...radiation sickness in 50% of the people; 200 r... depression of all blood elements, decrease of vitality, about 5% mortality; 225 r...radiation sickness in everybody; 250 r...5% mortality; 400 r...50% death; 600 r...all exposed will die from radiation.

According to a member of the *Transcontinental Atomic Company* (Germany) total body irradiation after an atomic explosion is best treated with the so-called AET substance (S,B-amino-ethyl-isothiouronium-bromid-hydrobromid) though it is still far from the point where pills of this substance could be taken in advance for protection against the radioactive fall-out of atomic explosions.

A physician of Western Australia spent some time in *New Guinea* where his wife's first child was born. The baby was crying a lot without any particular reason. The doctor observed that the native women used to silence their own crying infants by carrying them in a string bag on their back, while they put the carrying strap of the bag on their forehead, and walked about till the baby fell asleep. The doctor acquired such a bag, and it worked fairly well with his baby, too. By the rhythmic up-and-down movement, the baby was hypnotized. Then, the doctor began to experiment with a canvas hand-carrier, and tested several forms of motion and oscillation as to their power of putting a baby to sleep. He found that a *perpendicular oscillation movement* was far more effective than the old-fashioned swinging and rocking after the manner of cradles and rocking-chairs. The most effective was an oscillation with an amplitude of about 4 inches, and at a frequency of about 90 per minute. These experiments with baby hypnosis led the doctor (F. W. KNOWLES) to the construction of a *relaxing machine* for adults which is a special type of bed, standing on four strong springs, and having a small electric motor to produce the required perpendicular motion of the bed at the desired rate and amplitude. While this is a good silencer for babies, in adults the swinging will only create a muscular relaxation and a pleasant feeling. Perhaps, it will soon become standard office equipment in all bureaus where employees are liable to have tension headaches!...*Multa paucis!* And MERRY CHRISTMAS!

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1960

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1960, a medal, a scroll, and a cash prize of $500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 20 June 1960, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in MILITARY MEDICINE. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

NOTES

Timely items of general interest are accepted for these columns. Deadline is 1st of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON. FRANK B. BERRY, M.D.

Deputy Ass't Sec'y—HON. EDW. H. CUSHING, M.D.

DEFERMENT FOR RESIDENCY

To permit their further training 947 interns now at hospitals throughout the country will be deferred from call to military service in order that they may start residency training in a specialty. This is to be effective as of July 1, 1960.

Army

Surgeon General—LT. GEN. LEONARD D. HEATON

Deputy Surg. Gen.—MAJ. GEN. THOMAS J. HARTFORD

ASSIGNMENTS TO SGO

Colonel Pearson W. Brown, DC, was recently appointed Assistant Chief of the Dental Division; Major General James M. Epperly is Chief of the Army Dental Corps.

Colonel Brown received his Doctor of Dental Surgery degree from Emory University Dental College, Atlanta, Georgia. He is a graduate of the Command and General Staff College of the Army and the U. S. Army War College. Prior to his present assignment he was Director of the Department of Dental Science at the Army Medical Service School, Ft. Sam Houston, Texas.

Colonel Elwood W. Camp, MSC, recently became Chief, Hospital Methods Improvement Branch, Office of the Surgeon General. He replaces Colonel James M. Blackwell, MSC, who has been appointed Executive Officer, Surgeon's Office, Third Army.

Lt. Colonel Robert F. Lerg, MSC, recently replaced Major William Wegner, MSC, in the Personnel and Training Division, Office of the Surgeon General.

Lt. Colonel William J. Wilson, MC, was recently appointed as Assistant Chief, Preventive Medicine Division, and Chief, Civil Public Health Branch, Surgeon General's Office. He replaced Colonel Philip R. Beckjord, MC, who will command the 65th Medical Group, Eighth Army, in Korea.

Major Jack C. Fitzpatrick, MC, a nuclear medical officer, was recently assigned to the Office of the Surgeon General to replace Lt. Colonel G. M. McDonnel, MC, who retired to accept a faculty position at the University of California in Los Angeles.

Major Earl R. McCandless, MSC, was recently assigned to the Personnel and Training Division, replacing Major Milton Cohen, MSC, who has been assigned to the Hospital Administration Course, Army Medical Service School, Ft. Sam Houston, Texas.

Major Frederick M. Wells, MSC, has been assigned Chief of the Development Branch in the Army Medical Research and Development Command. This Command is headed by Brig. General Joseph H. McNinch.

Captain Vincent C. Sweeney, MC, has been appointed Staff Psychiatrist in the Office of Chief Psychiatry and Neurology Consultant, Professional Division, Office of the Surgeon General.

COMMANDS FORT JAY HOSPITAL

Colonel Marcus H. Flinter, MC, has been appointed Commanding Officer of the U. S.

Army Hospital, Fort Jay, Governors Island, New York. He succeeds Lt. Colonel Martin Putnoi who was transferred to the Office of the Surgeon General.

Colonel Flinter came to Fort Jay from Formosa where he served with the U. S. Military Assistance Advisory Group, Taiwan, as Medical Advisor to the 2nd Chinese Field Army.

During World War II, Colonel Flinter served in the Southwest Pacific. He served on Guadalcanal, Canton Islands, Gilbert Islands, Marshall Islands, Mariannas, and in the Philippines.

AWARDED FELLOWSHIP FOR STUDY ABROAD

Dr. Zigmund Z. Ziporin, Chief of the U. S. Army Medical Research and Nutrition Laboratory's Biochemistry Section, located at Fitzsimons Army Hospital, has been awarded the Secretary of the Army's Research and Study Fellowship, which will enable him to continue research on the body's use of Vitamin D. He will go to the Karolinska Institute in Stockholm for his further study.

He has specialized in the study of Vitamin D—specifically, how the vitamin is used in the body. It is known that this vitamin participates in the deposition of calcium in the bones but does not directly react with the bones. So it is assumed that a tissue in the body may provide a necessary factor required to complete the steps for bone calcification.

His research work in Sweden may provide some basic information which will contribute to the understanding of bone formation.

HEADS ENVIRONMENTAL HEALTH LABORATORY

Colonel Adam J. Rapalski, MC, was recently appointed Commanding Officer, U. S. Army Environmental Health Laboratory, Army Chemical Center, Maryland. He recently completed an assignment as Preventive Medicine Consultant at Headquarters, U. S. Army Europe. From 1951-55 he served as Executive Secretary of the Armed Forces Epidemiological Board.

The Army Environmental Health Laboratory supports the Army preventive medicine program through investigations, tests, consultation services and research in areas such as environmental hygiene and sanitation, medical entomology, occupational health, industrial hygiene and radiological hygiene.

COMMENDATION RIBBON TO NURSE

Lt. Colonel Mildred I. Clark, ANC, Chief of the Nursing Service, 98th General Hospital (APO 34, New York), was recently awarded the Commendation Ribbon with Metal Pendant by the Secretary of the Army for distinguishing herself as Director, Personnel Recruiting Programs for the Army Nurse Corps during the period September 1955 to August 1959.

HEARING TESTS

Use of audiometers to test the hearing of all enlistees and selectees examined at Armed Forces Induction and Examining Stations will be required in the near future according to a recent directive in Army Regulations.

FATALITY FREE YEAR

Fort Meade, Maryland completed a full year without a fatality in non-Army vehicles. There were, however, nine injuries marring the driving record, and those occurred after-duty-hours off-post.

ONE ARMY

The officer corps of the Active Army numbers 91,000 of which nearly two-thirds are of the Reserve components.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADM. EDWARD C. KENNEY

ASSIGNMENTS TO BUMED

Rear Admiral Cecil L. Andrews, MC, recently reported to the Bureau of Medicine

and Surgery for his new assignment as Assistant Chief of the Bureau for Personnel and Professional Operations. He had been Commanding Officer of the U. S. Naval Hospital, St. Albans, L.I., New York, since May 1958.

A native of Indiana, Admiral Andrews graduated from Indiana University School of Medicine in 1930 and was appointed Lieutenant (junior grade) in the Medical Corps of the Navy. He was selected for the rank of Rear Admiral which was approved by the President on July 27, 1959. During World War II he served as Senior Medical Officer on the USS *South Dakota.* He was awarded the Purple Heart Medal for wounds received, and the Bronze Star Medal with Combat "V" for "meritorious achievement while serving on that ship."

Rear Admiral C. C. De Ford, DC, recently relieved Captain R. S. Snyder, Jr., DC, as Inspector General, Dental. Captain Snyder will serve as the Assistant to the Inspector General, Dental.

Captain Merrill H. Goodwin, MC, has been assigned as Assistant Chief of the Bureau of Medicine and Surgery for Aviation Medicine and Director, Aviation Medicine Operations Division. He replaced Captain Oran W. Chenault who retired.

CHIEF DENTAL SERVICE VISITS NNMC

Official U. S. Navy Photo

SURG. REAR ADM. C. J. FINNEGAN (left) paid call on REAR ADM. BRUCE E. BRADLEY, MC, USN

Surgeon Rear Admiral Charles J. Finnegan, RN, Deputy Director of Dental Services of the British Admiralty in London recently paid a call on Rear Admiral Bruce E. Bradley, MC, USN, Commanding Officer, National Naval Medical Center, Bethesda.

Admiral Finnegan was shown the facilities at the National Naval Medical Center and spent some time at the Naval Dental School which is a part of the Center. He was the honored guest at a luncheon given by the Dental School.

COLOR ATLAS PRESENTED

Official Navy Photo

Ciba members AL HOTALING, JED MEES and DR. RICHARD ROBERTS look over a color atlas with REAR ADMIRAL BRUCE E. BRADLEY.

Recently Ciba Pharmaceutical Laboratories presented to the Edward Rhodes Stitt Medical Library at the National Naval Medical Center a color atlas of the upper digestive tract and the latest edition of the color slides of Medical Illustration. This makes a total of 745 color slides donated by Ciba. The color atlas and the slides were received for the library by Rear Admiral Bruce E. Bradley, MC, USN, Commanding Officer of the National Naval Medical Center, Bethesda, Maryland.

RETIRED

Captain Oran W. Chenault, MC, who for the past two years has been Assistant Chief of Bureau of Medicine and Surgery for Aviation Medicine, was recently retired from active naval service of more than 29 years.

Doctor Chenault was on duty in Hawaii when the Japanese made their attack on

Pearl Harbor. Later he was assigned to the USS *Bunker Hill* as the Senior Medical Officer. In this position he was present at many of the major Pacific actions as the carrier was assigned to Task Force 58-38.

His son, Lieutenant Oran Ward Chenault, Jr., is serving his internship at the U. S. Naval Hospital, San Diego, California. Captain and Mrs. Chenault will take up their residence in the same city with their home address being 4221 Hill Street.

Other officers recently retired from the Navy are: Captains C. J. Wass, DC and W. P. Kemp, DC.

FROM THE DEPTHS OF THE SEA

Escaping from a submarine 300 feet under the surface of the ocean was recently accomplished by Commander George F. Bond, Medical Corps, U. S. Navy, and Chief Engineman C. G. Tuckfield.

At that depth the pressure is about 135 pounds per square inch. (At sea level the air pressure on our bodies is about 14 pounds per square inch.)

The time involved for the escape to the surface which included time spent in the escape lock was slightly over a minute.

LIKE THE ANTARCTIC?

Volunteers from the Regular and Reserve Medical Corps having the necessary qualifications to withstand the rigors of the Antarctic may apply for a 7-8 months training (beginning April 1960) followed by one year in that land of ice and snow.

As stated, "Here is an opportunity to round out your medical training; to save money; to participate in an interesting research program, biological, medical and geophysical; and to become acquainted with the world's last frontier."

Interested persons may apply to the Bureau of Medicine and Surgery, Department of the Navy, Washington, D.C.

TRAINING AT TAIPEI

The Naval Medical Research Unit at Taipei, Formosa, has organized a training program to provide opportunities for scientists in foreign countries to utilize the equipment at their laboratory to carry on research in fields of mutual interest.

The visiting scientists, who will work under and with American specialists, both military and civilian, will study the fields of virology, parasitology, clinical investigation, and entomology.

The first medical research fellow to study under the new program was a woman doctor from Bangkok, Thailand, Dr. Boon-Nam Vanikiati. Her work at the Institute was primarily in the treatment of cholera.

According to Captain R. A. Phillips, MC, USN, provisions have been made to take care of twelve research fellows from countries in the Far East.

STORAGE OF BLOOD

Frozen blood may be the answer to the waste that now exists in the storage of blood.

Under present methods blood can be preserved for about 21 days and then must be discarded. This leads to a waste estimated at $10 million annually.

By freezing blood under a special process now under investigation by the Office of Naval Research and the Linde Company of Tonawanda, New York, it has been found that 85 percent of the blood cells are still alive after a long period of storage.

The technique uses liquid nitrogen as a refrigerant bringing the blood rapidly to 195 degrees below Centigrade. The method is so rapid that a pint of blood can be frozen in less than 30 seconds.

This research is now in its final stages.

FILM AVAILABLE

A new film, "The Navy Dental Corps," which portrays the professional and family life of a young Navy dental officer from the time just prior to his being ordered to active duty upon graduation from dental school through an interval of approximately five years, may be obtained on a loan basis by writing to the Bureau of Medicine and Surgery (Code 6), Department of the Navy, Washington, D.C.

Air Force

Surgeon General—MAJ. GEN OLIVER K. NIESS
Deputy Surg. Gen.—BRIG. GEN. JOHN K. CULLEN

NATIONAL CONSULTANTS AND COMMAND SURGEONS CONFERENCE

The National Consultants to the Surgeon General of the Air Force and the Command Surgeons recently met at Lackland Air Force Base, Texas.

Major General Oliver K. Niess, Surgeon General, in disclosing that there were 247 medical facilities that had to be staffed and supervised said, "Our philosophy is to bring medical services to the Air Force wherever based, stress preventive medicine and active outpatient services, but encourage when necessary early hospitalization, immediate therapy, and rapid return to duty." He stated that the current 12-month ratio of 9.8 non-effectives per 1,000 strength was the best in Air Force history. He further stated that there are 12 million outpatients a year and 400,000 admissions a year to hospitals.

DISASTER ASSISTANCE TEAM

The Ninth Air Force Disaster Assistance Team from the 1st Aeromedical Evacuation Group at Pope Air Force Base, N.C., maintains a three hour alert to move into a disaster area to give medical aid.

This 31 member team has equipment which includes a radio, jeep and trailer loaded with medical supplies.

A recent demonstration was given in Philadelphia in connection with the 10th Armed Forces Medical-Dental Symposium.

TIME TO THINK

In this very busy world have you ever felt that you would like to have time to think? We rush to work in the morning, fighting traffic every inch of the way, listen to the telephone ring dozens of time, bolt our lunch, and then at the end of the day fight our way home in the maddening traffic. No time to think?

Well, if you are tired of that kind of a life and want some time to meditate you might volunteer for 30 days in the new space capsule at the School of Aviation Medicine. You may even have someone record your thoughts since the new capsule holds two persons. It is an improved model over the one that was occupied by Airman Donald G. Farrell about a year ago.

This manned satellite simulator is an elliptical steel tank eight feet high and twelve feet long. It provides most of the comforts of home plus an abundance of scientific equipment. All the needs of two persons have been provided for, from air to breathe to food and music to break the monotony. While some of this equipment can be controlled by the individuals, vital parts are controlled by monitors.

Two quarts of water and 3,000 calories of food will be provided for each day. The food will be non-perishable so refrigeration is not required, but a heating element will be provided to warm up soup and coffee.

Dr. B. E. Welch, Chief of the Astro-ecology Section of the School, said: "The men who enter the cabin will be completely sealed off from the world to which they have grown so accustomed. Time will weigh heavily on their minds, and boredom will become their constant companion. The familiar day-night cycle they live by will be lost. Though they will be able to stand erect and move about a bit in the cabin, they will still be greatly cramped during the thirty days. And thirty days can be a very long time."

Now this will give plenty of time to think!

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—JOHN D. PORTERFIELD, M.D.

POLIOMYELITIS

There have been almost twice as many cases of paralytic poliomyelitis this year as there were in 1958. The trend seems to be upward again. For the 45-week period of this year there were 5,150 cases.

It is of some interest to compare the number of cases in the calendar year of 1954 (14,397) with that of 1955 (10,577).

With an upward trend of poliomyelitis in mind we must not become complacent but must be aroused to the urgency for vaccination against this crippling disease. While any time may be suitable for vaccination it seems logical that the best time is that time before the season of highest incidence of the disease is upon us. So we must urge vaccination during the winter months.

A problem that arises is the reaching of the lower socio-economic groups. Free vaccination apparently does not give them the incentive to receive the injections that they should have against this disease. An intensive educational campaign which will reach these people must be undertaken. We must talk vaccination against poliomyelitis all the time. We must keep this matter before all the public all the time to curb the upward trend which we have seen in 1959.

INTERNATIONAL HEALTH PROGRAM FUNCTIONS

The policy, planning, and staff functions of the international health program which was formerly part of the Bureau of State Services, U. S. Public Health Service, have been transferred so as to operate directly under the Surgeon General's Office. Dr. H. van Zile Hyde, Assistant to the Surgeon General for International Affairs, will be Chief of the Division.

RETIRED

The following Commissioned Officers of the Public Health Service were recently retired: Medical Directors (grade equivalent to Navy Captain) Thomas H. Ainsworth, Delbert M. Bergenstal, and Walter P. Griffey; Senior Assistant Surgeons (grade equivalent to Navy Lieutenant) Michael Berman and John C. Stirling.

DIRECTS PHARMACY ACTIVITIES

Pharmacist Director George F. Archambault, D.Sc., has been designated by the Surgeon General to represent the U. S. Public Health Service in all pharmacy activities. In this capacity he will maintain liaison with professional, educational, industrial pharmaceutical organizations and similar associations, and will serve as advisor on pharmacy to the Surgeon General. He will continue as Chief of the Pharmacy Branch for the Public Health Service hospitals, a position which he has held for 12 years.

PHARM. DIR. GEORGE F. ARCHAMBAULT, D.Sc.

IMMUNIZATION INFORMATION

The latest issue of the booklet, *Immunization Information for International Travel* (PHS Publ. No. 384, revised June 1959), can be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., for 30¢ a copy. There is a discount of 25% for 100 or more copies delivered to the same address.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.

Deputy Chief Med. Dir.—R. A. WOLFORD, M.D.

VETERAN POPULATION—U. S.

The veteran population at the end of August was estimated at 22,644,000 which is

13,000 less than at the end of July. For the past year there has been a steady decrease in the number of veterans. This decrease is, of course, most noticeable in the older age groups.

At present the estimated figure for veterans of World War I is 2,760,000.

MEDICAL CARE

The average daily patient load of veterans in VA hospitals as estimated for August 1959 was 110,316; those in non-veteran Administration hospitals numbered 3,030. The load for the winter months, of course, is expected to rise.

For domiciliary care the patient load was slightly over 16,000 a day (figures for August 1959).

Outpatient visits for August 1959 numbered 197,500.

DIRECTOR OF MEDICAL RESEARCH

Dr. Marc J. Musser, who has been director of professional services at the Houston, Texas, Veterans Administration Hospital, and Professor of Medicine at Baylor University College of Medicine, has been appointed director of medical research, Veterans Administration, Washington, D.C.

From 1941 to 1945 he was on active duty in the Army as Commanding Officer of the 135th Medical Group. He attained the rank of colonel.

He is one of the two consulting editors of the January 1959 issue of the Medical Clinics of North America.

APPOINTED INSTRUCTOR

The Chief of the Dietetic Service at the VA Hospital, Fort Lyon, Colorado, Isabelle G. Dubar, has been appointed instructor, Specialized and Staff Training, 9767th Air Reserve Squadron, Pueblo, Colorado.

Mrs. Dubar served with the military forces during World War II in the capacity of dietitian. After her active military service she joined the Veterans Administration and has kept up her interest in military affairs through her commission in the Air Force Reserve.

PSYCHOLOGICAL TESTS FOR AGED

At the Kecoughtan, Virginia, Veterans Administration Hospital Doctors Neil W. Coppinger, Rayford T. Saucer, and Dr. Rayman W. Bortner, clinical psychologists, are developing psychological scales and tests for the older age groups. It has been explained that the tests now used for other groups are not suitable for the older persons.

Subjects of the studies are aging veteran-residents of the VA domiciliary home at the Kecoughtan center. These number more than a thousand.

DRUG LOWERS BLOOD PRESSURE

Guanethidine is reported by physicians of the Veterans Administration as having the effect of reducing high blood pressure.

Dr. Edward D. Freis of the Washington Veterans Administration Hospital and Dr. Edward D. Frolich of Georgetown University School of Medicine, and Dr. David W. Richardson and Dr. Eugene M. Wyso of the Richmond, Virginia, Veterans Administration Hospital recently made the disclosure that guanethidine by mouth was given over a period of many weeks with little side-effect to patients that were resistant to some of the other drugs usually given for hypertension. The undesirable effects which were noted in a few cases were diarrhea and in other cases dizziness. Neither of these side-effects was found to be serious.

Miscellaneous

PROMOTION

Dr. L. Eugene Daily, Chairman of our Sustaining Membership Section, has received a very fine promotion to administrative Vice-President of Norwich Pharmacal Company. He had formerly been Vice-President in charge of the Eaton Division of Norwich Pharmacal Company.

In this new position Dr. Daily will be responsible for four of the company's sales divisions: Eaton Laboratories, Norwich, Export, and Canadian.

LOAN FUND FOR INTERNS AND RESIDENTS

The George W. Merck Memorial Loan Fund which over a period of eight years will total $400,000 has been established "to encourage deserving interns and residents to seek the best possible postgraduate training by providing loan funds that will supplement the stipends available to them at teaching hospitals."

Eighteen medical schools participating are associated with the following universities: Boston, California, Chicago, Columbia, Cornell, Harvard, Illinois, Johns Hopkins, New York, Northwestern, Pennsylvania, St. Louis, Tufts, Vanderbilt, Vermont, Virginia, Washington (St. Louis), and Yale.

The Deans of the Schools of Medicine of these universities will have control of the funds for loan and will set the method of repayment. The funds will then become self-perpetuating.

VITAMIN E

The daily diet provides more than an adequate amount of Vitamin E according to the Food and Drug Administration. Supplementing the diet with products purporting to be sources of this vitamin is, therefore, unnecessary according to that Administration.

It was pointed out that there are differences of opinion regarding the role of Vitamin E in animal and human nutrition since its discovery in 1925. Claims that this vitamin is useful in treatment of sterility, heart disease, and muscular dystrophy are not valid.

SOCIAL SECURITY

Over 13 million persons receive checks monthly from the government under the Old Age, Survivors, and Disability Insurance Program. This amounts to almost 10 billion a year.

TAX DEDUCTION

Children under 19 or those over 19 who qualify as students (in school for at least five months during the year) can earn more than $600 without costing parent loss of a dependency deduction—so long as parents provides 50% or more of dependent's annual support.

REPORTS AVAILABLE

The following reports are available through the Office of Technical Services, U. S. Department of Commerce, Washington 25, D.C.

Technical Consideration on Survival Measure and Reduction of Casualties (TID-5559), 43 pp., 50¢.

Biological Effects of A Nuclear Attack (TID-5563), 28 pp., 50¢.

Vision in Military Aviation (PB 151653), 394 pp., $5.00.

Biological and Environmental Effects of Nuclear War—Statement' of Dr. Libby to Congressional Committee (TID-5560), 18 pp., 50¢.

ELECTROCARDIOGRAPHY COURSES

Home Study Courses in electrocardiography are offered by the University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33, Calif.

FILM AVAILABLE

A Matter of Fact is a black and white sound film, running time of 30 minutes, that stresses the dangers of an inadequate post-mortem medical examination.

It has been pointed out that the public and doctors do not understand the criminal and civil implications which may stem from an inadequate post-mortem examination. This film highlights one of the more serious implications.

The film is available on a loan basis from The Wm. S. Merrell Company of Cincinnati and the American Medical Association.

MEETINGS

The Eleventh Annual Symposium on Recent Advances in the Study of Venereal Diseases will be held April 7 and 8, 1960, in the Palmer House, Chicago, Ill. The sessions will be open to all physicians and workers in allied fields who are interested in the venereal diseases.

The Symposium will follow a Venereal Disease Seminar for public health personnel which begins April 4.

The Third Annual Oklahoma Colloquy on Advances in Medicine will be March 24-26 at the University of Oklahoma Medical Center, Oklahoma City, with a program devoted to the adrenal steroids. Further information may be obtained by writing the Office of Postgraduate Education, University of Oklahoma Medical Center, 801 NE 13, Oklahoma City, Oklahoma.

The American Institute of Ultrasonics in Medicine will hold the Second International Conference in Washington, D.C., on August 20, 1960. Persons interested in presenting papers should consult Dorothy M. Stillwell, M.D., Chairman, Program Committee, University of Colorado Medical Center, Denver, Colorado.

Honor Roll

Since the publication of our last list, the following sponsored one or more applicants for membership in the Association:

Maj. Ken Purpus, MSC, USAFR
Col. George B. Green, USAF, MC
Capt. J. R. Kingston, MC, USN
Med. Dir. William L. Ross, USPHS
Lt. Col. George M. Beam, AUS, Ret.
Maj. Lorenzo Mercado Carvajal, MC, Venezuelan Army
Maj. Earl J. Harmer, Jr., MSC, USA
Dr. M. M. Van Sandt
Cdr. Calvin F. Johnson, MSC, USN
Lt. Col. Horace W. Doty, USA
Capt. Robert B. Brown, MC, USN
Col. James B. Nuttall, USAF, MC
Col. Aubrey L. Jennings, USAF, MC
Major A. E. A. Hudson, AUS
Cdr. Calvin F. Johnson, MSC, USN
F. Keshvar Mostofi, M.D.
Lt. Richard Sedam, MSC, USN
Col. Joseph Haas, MC, AUS
Maj. John G. Codik, MC, USAR
Pharm. Dir. George F. Archambault, USPHS
Lt. Cdr. Alice C. Van Gundy, NC, USN
Cdr. Paul Sebrechts, MC, USN
Col. Bingham Boyce, MC
Col. F. H. Van Wagoner, MC, USA
Robert Schmid, M.D.
Cdr. Helen Samonski, NC, USN
Major Sidney S. Listernick, MC, USAR
Lt. Richard Sedam, MSC, USN

New Members

Capt. Frank Cifarelli, MC, AUS
C. Malcolm B. Gilman, M.D.
Maj. Charlotte R. Rodeman, ANC, USA
Maj. Bernhard T. F. Kramer, MC, USAR
Richard A. Morton, D.D.S.
SA Surg. George H. Longenbaugh, USPHS
Major Gerald A. Sydell, USAF-R (DC)
JA NO Sigrid M. Tesaker, USPHS-R
1st Lt. Herbert N. Snow, VC, USAF-R
Capt. Calvin S. Steever, MC, USAF
Med. Dir. James L. Goddard, USPHS
1st Lt. H. Lyle Stotts, USAF-R (MC)
Surg. Michael W. Justice, USPHS
Capt. Montie E. Smith, Jr., USAF-R (MC)
Sr. Surg. Henry V. Belcher, USPHS
Capt. Dralan Simonson, DC, USAF-R
Asst. Ther. Eugene A. Edwards, USPHS
Capt. Vernon W. Montsinger, Jr., DC, USAF-R
SA Surg. Donald C. Reifel, USPHS
Capt. Thomas A. Collins, Jr., MSC, USAF-R
Sr. Asst. Surg. Donald E. Poage, USPHS
Major Samuel L. Snead, MSC, USAF-R
Nurse Dir. Genevieve R. Soller, USPHS
Sr. Surg. Charles J. Buhrow, USPHS
Capt. Dale V. Pederson, MSC, USA
Sr. San. Eng. Harold F. Harper, USPHS
Capt. Oliver Scow, Jr., DC, USAF-R
Maj. James D. Small, MSC, USAF-R
SA Surg. Wandyr J. Moore, USPHS
Albert W. Hilberg, M.D.
Thomas F. Flynn, M.D.
Needham E. Ward, M.D.
Lt. Col. James M. Neville, DC, USA
N. O. Mary Romer, USPHS
Capt. Roger H. Fuller, MC, USN

Lt. Jay F. Harmer, USAF (DC)
William Hamilton Roper, M.D.
Philip Newbold, Jr., M.D.
Capt. William Melvin Snowden, MC, USN
Maj. Arnold Michael Reeve, MC, USA
Col. Louis B. Arnoldi, USAF, MC
Lt. Donald G. McQuarrie, MC, USNR
Lt. Col. Salvatore A. Pepe, USAF-R (MC)
Don L. Miller, D.D.S.
Sr. Asst. Surg. Paul E. Berkebile, USPHS
1st Lt. Charles L. Vrbanac, USAF, MC
Capt. David Edmund Langdon, USAF, MC
G. Howard Tucker, Jr., M.D.
Capt. Ernest M. Weitz, USAF-R, MC
N. O. Maybelle Sacher, USPHS
Maj. Paul H. Webb, USAF-R, DC
Aris Carpousis, M.D.
Maj. Andrew A. Windham, USAF-R, MC
Capt. Cleveland Turner, Jr., USAF, MC
Lt. Col. Kenneth C. Mason, USAF-R, MSC
Lt. Col. Charles J. Prchal, USAF-R, VC
Lt. Col. Sam C. Uphouse, USAF-R, MSC
Capt. Alfred Wilner, USAF-R, MSC
Capt. Flavio F. Talens, MC, USA
Capt. Donald R. Stover, USAF-R, DC
Surg. Donald C. Walsh, USPHS
Capt. Warren S. Witus, USAF, MC
Capt. Luis F. Lopez Hernandez, USAF-R, MC
Capt. Frederick M. Weissman, USAF-R, MC
Maj. Charles A. Berry, USAF, MC
Med. Dir. Robert L. Brutsche, USPHS
Cdr. J. E. McClenathan, MC, USN
Surg. John A. Schadler, USPHS
Capt. Albin A. Galuska, MC, USN
Capt. A. R. Errion, MC, USN
Lt. Dominic A. Verme, MSC, USN
Surg. E. van der Smissen, USPHS
Lt. Patrick L. Anders, MC, USNR
LCdr. Orin Carl Western, MSC, USN
Cdr. Arthur L. Hall, MSC, USN
Lt. John J. Donoghue, MC, USN
Lt. John Henry Baker, MC, USN
Lt. Col. John K. Wright, MC, USAFR
LCdr. Delima M. Dumas, MSC, USN
Lt. Melvin D. Bergquist, Jr., MSC, USN
Lt. Joseph Feith, MSC, USN
Capt. Jehu Callis Hunter, USPHS-R
1st Lt. Paris B. Swoopes, USAFR, MSC
Frank R. Bustillo, D.D.S.
2nd Lt. William A. Dimmitt, MSC, USA
Capt. Charles B. White, MSC, USAF

BE ESPECIALLY CAUTIOUS OF FIRES DURING THE HOLIDAY SEASON

NEW BOOKS

Books May Be Ordered Through The Association

Synopsis of Gynecology, Robert James Crossen, M.D., Daniel Winston Beacham, M.D., Woodard David Beacham, M.D., C. V. Mosby Co., St. Louis, Mo. Price $6.50.

Army Lady Today, Helen Todd Westpheling, Heritage House, Charlotte, N.C. Price $1.25.

The Foot and Ankle, Philip Lewin, M.D., F.A.C.S., Lea & Febiger, Philadelphia, Pa. Price $14.00.

Ciba Foundation Study Group No. 1, *Pain and Itch, Nervous Mechanisms,* Editors G. E W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P. and Maeve O'Connor, B.A., Little, Brown & Co., Boston, Mass. Price $2.50.

Ciba Foundation Study Group No. 2, *Steric Course of Microbiological Reactions,* Editors G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Cecilia M. O'Connor, B.Sc., Little, Brown & Co., Boston, Mass. Price $2.50.

Neurology of Infancy, Anatole Dekaban, M.D., Ph.D., Williams & Wilkins Co., Baltimore, Md. Price $12.00.

Metabolic Care of the Surgical Patient, Francis D. Moore, M.D., W. B. Saunders Co., Philadelphia, Pa. Price $20.00.

Biopsy Manual, James D. Hardy, M.D., James C. Griffin, Jr., M.D., Jorge A. Rodriquez, M.D., W. B. Saunders Co., Philadelphia, Pa. Price $6.50.

The Preparation of Medical Literature, Louise Montgomery Cross, J. B. Lippincott, Co., Philadelphia, Pa. Price $10.00.

Clinical Orthopaedics, #14: *Recent Advances in Orthopaedic Surgery in Infancy and Childhood,* Anthony F. DePalma, Editor-in-Chief, J. B. Lippincott, Co., Philadelphia, Pa. Price $7.50 single copy. (By subscription $18.00 per year—3 volumes.)

Upper Digestive Tract, Frank H. Netter, M.D., Part I of Volume 3, Digestive System, The Ciba Collection of Medical Illustrations, Ciba Pharmaceutical Products, Inc., Summit, N.J. Price $12.50.

W.H.O. Supplement to *The Pharmacopoea Internationis,* Columbia University Press, New York, N.Y. Price $5.00.

Clinical Neurosurgery, Proceedings of the Congress of Neurological Surgeons, San Francisco, Calif. 1958, The Williams & Wilkins Co., Baltimore, Md. Price $11.00.

The Fluids of Parenteral Body Cavities, Paul D. Hoeprich, M.D., John R. Ward, M.D., Grune & Stratton, New York, N.Y. Price $4.75.

The Megaloblastic Anemias, Victor Herbert, M.D., Grune & Stratton, New York, N.Y. Price $6.00.

BOOK REVIEWS

ADENOMECTOMIE ENDO-URETRALE DE L'ADENOME PROSTATIQUE ET TRAITEMENT DU CANCER DE LA PROSTATE. 194 pp., 100 figs. Masson et Cie, Paris. Price 2.500 fr.

There are at present no monographs on transurethral resection of the prostate inasmuch as both the works of Dr. Barnes and Dr. Nesbit are out of print. This book which deals with transurethral resection of the prostate will therefore fill a great need. Although the book is written in French, I believe anyone with an acquaintance of the language will be able to use this book without difficulty. There are many excellent diagrams in the text.

The book discusses the technique of resection, discussing the techniques of Barnes and Nesbit; postoperative care; treatment of various complications attendant upon resection including the recently discussed phenomenon of fibrinolysis, renal shut down, etc. There is also presented suggested methods of preventing urethral stricture following or during resection; surgical treatment for incontinence; for chronic prostatitis, for bladder neck obstruction in infants and children as well as neurogenic dysfunction of the bladder; and tuberculosis of the bladder. Statistics on mortality and follow up are given. Anesthesia is discussed—general anesthesia is apparently preferred to the common use of spinal anesthesia in this country. The closing chapter presents a discussion of the treatment of cancer of the prostate with estrogens, orchiectomy; the use of serum acid phosphatase levels as aprognostic tool; and the use of cortisone.

The book has an exhaustive and excellent bibliography on the subject—a majority of the references are to works published in the Journal of Urology—and although there are some slight typographical errors in this listing, I believe the references can be found without difficulty. All in all, an excellent book.

ALAN L. KLEIN, M.D.

GROUP PSYCHOTHERAPY. Theory and Practice. 2nd Ed. J. W. Klapman, M.D. 301 pp. Grune & Stratton, New York and London. Price $6.75.

While group interaction proceeds in any hospital with reciprocal influences of individual-on-group and group-on-individual, the process can, among other possibilities, be antitherapeutic or destructive. When brought under the conscious mediation of the staff it is potentially the major corrective experience of the patients hospital time. "When group therapy is introduced into an institution, distance between personnel and patients tends to diminish . . . leading to creation of a milieu out of which a greater incidence of recoveries and improvements may be expected to precipitate." Among other functions, group process in therapy breaks into the patients' self-imposed isolation with rapid resolution of resistances, affords vicarious catharsis, and promotes a shift toward group acceptable behavior. Dr. Klapman proposes that a difference between fundamental group and individual psychotherapy is the giving relationship of the former as opposed to the receiving relationship of the latter. This useful book, epitomized by such ideas as have been quoted and paraphrased above, considers historical backgrounds, general group dynamics, viewpoints of various "schools," an integration of Adlerian, analytic, and other philosophies, and methods for the assessment of results. The crowded pages and indifferent binding make this book a poor example of the bookmakers art. The content is a different matter. It will be valuable to physicians interested in the further development of this highly promising therapeutic modality.

CDR. THOMAS H. LEWIS, MC, USN

SQUINT AND ALLIED CONDITIONS. By George P. Guibor, M.D. 356 pp., illustrated. Grune & Stratton, New York and London. Price $11.50.

This is a splendid book on the subject of squint. There are many things about this book that appeal to the ophthalmologist.

In chapter one a detailed explanation of those features of the history and inspection of the eye that are of value are described in detail. In chapter two the objective examination of patients with squint is described in sufficient detail to be of great value.

Chapter three deals with the cover test. This is a long chapter because the author believes that the cover test is one of the finest tests for revealing the characteristics of strabismus. He advocates the use of the cover test both as a qualitative and quantitative test for hypertropia and as a test to be made during local anesthesia. It is of value in determining the results of surgical and non-surgical treatment and for the purpose of differentiating paralytic from non-paralytic squint. He likes to use the cover test in combination with the Maddox rod. In spite of his preference for the cover test he realizes its limitations and describes them fully.

Chapter four deals with functional or subjective examination of the eye in patients with hypertropia. The author uses the synoptophore for a great deal of his testing in the office and describes various fusion tests with this piece of orthoptic equipment. The determination of anomalous correspondence by the "after-image-test" is described, and the various methods used for testing, and information elicited from these tests, is covered.

Chapter five deals with paralytic squint and chapter six deals with supranuclear derangements of ocular movements. There is an entire chapter on amblyopia, chapter seven, and an entire chapter on anomalous correspondence, chapter eight. Non-surgical treatment of squint receives a great deal of emphasis in this book and is very much in accord with the thinking of the author who is quite conservative about resorting to surgery.

Chapter ten deals with ametropia and the correction of refractive errors in the diagnosis and treatment of squint. Especially interesting is a discussion of fixation defects which may influence the findings in skiascopy, and the advisability of various corrections in amblyopia and squint, along with the problem encountered in training children to wear glasses. Chapter eleven deals with the use of atropine sulfate and chapter twelve with the use of ophthalmic prisms in the diagnosis and treatment of squint. There is an entire chapter on the technique and value of occlusion, chapter thirteen, and a long chapter on fusion training as an aid in treating motor derangements, chapter fourteen.

Chapter fifteen deals with the surgical treatment of squint. The author devotes only one chapter to this subject in his splendid text-book and this too is in line with the author's thinking. He says, "I have deliberately presented surgical treatment of squint last, because I believe that surgery should be reserved as the final and most dramatic method of overcoming squint instead of being the first and only means of treatment."

A reviewer should not fail to mention the bibliography at the end of the textbook which has almost all of the good articles on squint that have become classical in the ophthalmic literature. The index too, is well directed so that it enables the reader to use the book later as a reference book, after having studied it as a text-book.

The student of ophthalmology will like the concise form in which a comprehensive view of the whole field of strabismus is presented. Ophthalmologists will see a great deal of appeal in the detailed description of specific information on testing. The personality and varied experiences of Dr. Guibor as physician, surgeon, teacher, lecturer, and writer are reflected in this excellent text-book.

COL. ROLAND I. PRITIKIN, MC, USAR

STRONG AND ELWYN'S HUMAN NEUROANATOMY. 4th Ed. By Raymond C. Truex, Professor of Anatomy, Hahnemann Medical College. 511 pp., illustrated. The Williams & Wilkins Company, Baltimore. Price $10.00.

Dr. Truex's edition of Strong and Elwyn's text has added considerably to one of the best and most concise publications of human neuroanatomy. He maintains the book's original objective in beaming it primarily as a student text book. However, the bibliography has been brought quite up to date in the many areas of neuro-anatomical research. Many of the old illustrations have been revised and many new ones added.

Two new chapters concerning the gross aspects of the brain and spinal cord and blood supply of the central nervous system have been added. This new material and the entire text reveal the contributors successful efforts in preparing a well written, readable and integrated treatise on what will always remain a complicated subject.

JAMES F. HAMMILL, M.D.

ARTHRITIS. General Principles. Physical Medicine, Rehabilitation. Edited by Edward W. Lowman, M.D.; 24 collaborators. 292 pp., illustrated. Little, Brown and Company, Boston and Toronto. Price $9.50.

This book on arthritis exemplifies the newer team approach by several disciplines, medical and paramedical, in the diagnosis and management of disease, especilly chronic disease, today.

Only the first 70 pages are devoted to the conventional medical aspects of arthritis and its various types. They are excellently although briefly, covered. The remaining 75 percent of the text is primarily written by specialists in the paramedical services such as psychologists, physiatrists, nurses, social service workers, vocational counsellors, occupational therapists, *etc.* The sections on physical therapy and self-help devices are outstanding.

All in all, Dr. Lowman and his collaborators have written a finely integrated text that well illustrates the many, many factors that must be considered if chronic disease such as arthritis is to be managed successfully. Here, the clinician will find satisfactory coverage of those therapeutic aspects that are overlooked or barely mentioned in academic reviews of arthritis.

This book will have its greatest appeal to internists and those who specialize in arthritis and the management of chronic disease and to those paramedical specialists who seek a more satisfying and successful collaborative approach to the management of these widespread cruel and chronic disorders.

JULIAN LOVE, M.D., F.A.C.P.

PROGRESSIVE EXERCISE THERAPY.—In Rehabilitation and Physical Education. By John H. C. Colson, F.C.S.P. 184 pp., illustrated. The Williams & Wilkins Co., Baltimore, exclusive U.S. Agents. Price $4.50.

The author attempting to write a new text on Progressive Exercise Therapy is always at a disadvantage because of excellent coverage of subject already available.

Unquestionably the most effective result of Exercise Program and disabilities are accomplished by the team approach to the problem by physician, physical therapist and occupational therapist.

The arrangement of material is adequate and the illustrations of schematic drawings are good.

The reader may not agree with terminology used on their approach to any one group of exercises but the material is there and he may draw his own conclusions. One can find Progressive Exercises books readily available that would surpass this issue.

LCDR. MAURINE M. MECKES, MCS, USN

TROPICAL SPRUE. Medical Science Publ. No. 5. Studies of the U.S. Army's Sprue Team in Puerto Rico. Edited by Lt. Col. Wm. H. Crosby, MC, USA. 355 pp., illustrated. Superintendent of Documents, Government Printing Office, Washington. Price $1.75.

This fine monograph begins with an account of annual conferences on sprue from 1953 to 1958. In general, these outline many of the problems and paths of research in the subject. In the 24 chapters that follow such subjects as sprue in Puerto Rico, definition and diagnosis, treatment, pathological findings, biopsies and the electron microscopic examination of material, bacteriology, absorption of folic acid, and other metabolic and biochemical studies are described. The whole forms a most valuable and authoritative collection of information on this important disease.

Chapter III in which the question of whether sprue in the tropics and temperate zone, as well as some other celiac conditions are manifestations of one clinical syndrome or are separate diseases is of particular interest. Every chapter, however, contains facts on its subject matter that cannot be overlooked by anyone seeking a better picture of sprue in the light of modern research. This reviewer would like to have seen more than passing reference to the marked effect of climate on the incidence and treatment. A history of the discovery and the development of our knowledge of the disease would have been useful. In a book of composite authorship thumbnail biographical sketches of the writers with emphasis on their special knowledge of the subject is of interest to most readers.

There are good lists of references at the end of each chapter. The paper, typography, and appearance of the volume are above reproach.

CAPT. LOUIS H. RODDIS, MC, USN, RET.

MOLOY'S EVALUATION OF THE PELVIS IN OBSTETRICS. 2nd Ed. By Charles M. Steer, M.D., F.A.C.O.G. 131 pp., 57 figs. W. B. Saunders Company, Philadelphia and London. Price $4.00.

This monograph describes variations in the female pelvis which are of obstetrical significance and correlates these with their effect upon labor. Also is indicated how by clinical and roentgenological methods of examination the various abnormalities may be recognized.

An outstanding feature of this book lies in the description of the influence of the pelvic variations upon the mechanism of labor.

Both the medical student and physician, practicing obstetrics, will appreciate possessing this concise evaluation of the problem of the female pelvis in obstetrics, as it is designed to prepare the operator so that the proper method of delivery may be chosen in the individual case.

COL. JOHN W. DARROUGH, MC, USAR

TEXTBOOK OF PEDIATRICS. 7th Ed. Edited by Waldo E. Nelson, M.D., 81 contributors. 1462 pp., 428 figs. W. B. Saunders Company, Philadelphia and London. Price $16.50.

Over the years, Nelson's Pediatrics has become the recognized textbook for anyone interested in child care. The new 7th edition has been "word by word" revised for the purpose of combining concise expression with brevity. This is not an easy style of writing but through great effort on the part of the editor, leads to easier reading and comprehension. The 6th edition was in 1954 and because of rapid changes in medicine it may be necessary to revise this 7th edition sooner than five years.

Some of the most rapidly changing aspects of pediatrics have been brought forth in completely rewritten chapters by "new blood" or by the old and the new contributors combining their efforts. Some new sections have been added which may not be apropos for the use of U.S. Pediatricians. It may be that, because of rapid world-wide transportation, we as Pediatricians may see these diseases. These particular diseases may throw new light on similar pathological processes we are familiar with. The space utilized for these sections is small.

The Bibliography has been cut but references to articles which have extensive bibliographies have been included.

This is a text to be recommended with no reservations.

LT. COL. ALBERT E. HENSEL, JR., MC, LANG

PROGRESS IN HEMATOLOGY. Vol. II. Edited by Leandro M. Tocantins, M.D., with 19 contributors. 290 pp., illustrated. Grune & Stratton, New York and London. Price $9.75.

Dr. Tocantins has provided a second collection of reviews on hematologic subjects. Both the topics and the authors have been well chosen for general interest and diversity. Of special value are Congdon's paper on bone marrow therapy in radiation injury and Harris' paper on physical and chemical factors in the sickling phenomenon. It is interesting that Bessis, in a brief but excellent review of dynamic cytology, lists as references some 19 moving picture films, these in addition to 68 of the usual sort of references to the medical literature.

LT. COL. WILLIAM H. CROSBY, MC, USA

MOLECULES AND MENTAL HEALTH. Edited by Frederic A. Gibbs, M.D., 189 pp. J. B. Lippincott Company, Philadelphia and Montreal. Price $4.75.

This small volume is a report on two recent symposiums conducted by the Scientific Council of the Brain Research Foundation. In the last few years, greater emphasis has been placed on the organic basis of behavior disorders, and these two meetings are an attempt to clarify the possible organic basis for Schizophrenia and hypsarhythmia, which is the name applied to "a particular type of electroencephalographic pattern."

As stated in the foreword: "Our ideas about consciousness, thought and personality are still clouded by antique and outmoded concepts. Primitive man began by thinking that all things are persons; the sun, the wind, trees—all were personified. Disease processes and death were bad personalities, i.e., devils, demons and ghosts. Slowly, and with much carry-over of ancient attitudes, man came to recognize that forces and things are impersonal. The clear recognition that all living things are made out of the dust of the earth, out of exactly the same elements as nonliving things, came late and even now is not universally accepted. The idea that a living human being is an organization of atoms and molecules seems, even to many well-educated moderns, to be fantastic, improbable and essentially unpleasant. People are made uneasy by the thought that the brain, the fanciest part of the living human body, is a chemical system not basically different from other organs. Only a few men have seen that this way of looking at ourselves will set us free." This last sentence would indicate that this group of researchers does not feel that their theories are generally accepted, and, as one of the authors states on page 60: "Nonpsychiatrists are impressed by the wide diversity of concepts regarding schizophrenia which are held by psychiatrists."

Since the last World War, there has been an increasing tendency to separate neurology from psychiatry, rather than thinking of human behavior in terms of neuropsychiatry. Only this summer was it decided that the AMA separate the *Archives of Neurology and Psychiatry* into a journal of general psychiatry and another journal of neurology. This is unfortunate, as, although there are clearcut neurological syndromes, it is almost impossible to properly interpret personal behavior without considering it as a psychosomatic reaction.

This book is divided into two parts: "Amines in Relation to Brain Function and Behavior," and "ACTH Treatment of Hypsarhythmia." There are fifteen papers, which are followed by references, and a stenographic record of discussions on each paper. There are "Closing Remarks" by the Editor, F. A. Gibbs, but perhaps the volume would have been more complete if he had attempted a summary and conclusions. This is a valuable book for researchers in the field of human behavior, but, although there is a table of contents and a list of speakers, participants, discussants, and guests, there is no index.

CDR. JAMES L. MCCARTNEY, MC, USNR-RET.